THE RELATIONSHIP OF SCHOOL-WIDE POSITIVE BEHAVIOR SUPPORTS TO MALE STUDENTS' STANDARDIZED TEST SCORES, OFFICE DISCIPLINE REFERRALS, AND SUSPENSIONS IN AN URBAN MIDDLE SCHOOL

A DISSERTATION SUBMITTED TO THE GRADUATE SCHOOL

IN PARTIAL FULLFILLMENT OF THE REQUIREMENTS

FOR THE DEGREE

DOCTOR OF EDUCATION

BY

KEVIN SCOTT MAXWELL

DISSERTATION ADVISOR: DR. JOHN ELLIS

BALL STATE UNIVERSITY

MUNCIE, INDIANA

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APPROVAL PAGE

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BALL STATE UNIVERSITY

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MAY 2017

DEDICATION

To
Kenneth and Karen Maxwell
and
Lindsay and Susanne Ball

To my parents, Ken and Karen Maxwell, Ball State fans, who would have been proud of this accomplishment. I also dedicate this dissertation to my in-laws, Lindsay and Susanne Ball. If Susanne was still with us, she would have teased me that, even with a doctorate, I am still not as smart as Lindsay. Lindsay is a true lifelong learner, who values all contributions to the bank of human knowledge.

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ABSTRACT

DISSERTATION: THE RELATIONSHIP OF SCHOOL-WIDE POSITIVE BEHAVIOR SUPPORTS TO MALE STUDENTS' STANDARDIZED TEST SCORES, OFFICE DISCIPLINE REFERRALS, AND SUSPENSIONS IN AN URBAN MIDDLE SCHOOL

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The purpose of this study was to examine differences between academic and behavioral outcomes for three cohorts of sixth grade boys enrolled at Starlight Middle School, a large, urban school in the Midwest. A comparison was made between pre-, partial, and full intervention data, during three consecutive years of implementation of School-wide Positive Behavior Supports (SWPBS) as a Tier 1, Response to Intervention (RTI) strategy. This study used an ex post facto design to examine relationships among variables in three cohorts of sixth grade boys. The dependent variables were office discipline referrals (ODRs), suspensions, and statewide standardized test scores from over 200 students in each cohort. The independent variables were ethnicity, special education, and socioeconomic status (SES).

Quantitative data analysis revealed a significant reduction in the percentage of boys suspended and in the percentage of boys who received ODRs by Year 3, the year of full SWPBS implementation. During the study, state standardized test mean scores showed no statistically significant differences overall or within demographic groups. However, students who received ODRs or suspensions had statistically significant decreases in mean test scores, compared to

boys with zero ODRs or suspensions. Boys who passed the ELA or mathematics portion of the state test had statistically significant lower mean rates of ODRs or suspensions, compared to boys who failed. SWPBS implementation resulted in statistically significant decreases in ODRs and suspensions for the general population of sixth grade boys, however students who were Black, receiving special education services, or low-SES status received disproportionate numbers of suspensions even in Year 3, as other research has found.

CHAPTER ONE: INTRODUCTION

In 21st century America, educational attainment is a strong determinant of lifetime earnings (U.S. Departments of Labor, Commerce, Education, and Health and Human Services, 2014). Achievement gaps in childhood have lifelong impact, are not easily overcome, and are associated with inescapable poverty and/or incarceration (U.S. Department of Education, Office of Career, Technical, and Adult Education [OCTAE], 2015). In particular, boys are too often caught in these gaps while failing to keep up with increasing educational demands in America (Owens, 2016).

Boys begin failing early. They comprise 54% of public preschool enrollments, but 79% of preschool suspensions (United States Department of Education [USDOE], 2014). Boys' early behavioral problems have a larger negative impact on high school completion rates than girls. Academic success and behavioral success are interrelated. It is not merely cognitive ability that drives future economic success. Non-cognitive behaviors are taught, rewarded, and/or discouraged both at home and in school. Skills developed in early stages strengthen the development of future skills as children move up and through grade levels (Cunha & Heckman, 2009). Moreover, school environments and student behaviors interact and reciprocally influence one another. Both are significant predictors of later success (Fletcher & Tienda, 2010; Owens, 2016). Research suggests that punitive school environments, driven by widespread implementation of zero-tolerance policies, increase negative behavior, and contribute to boys' school failure and dropout (Carr-Chellman, 2011; Metzler, Biglan, Rusby, & Sprague, 2001; Owens, 2016; Skiba et al., 2011).

Boys continue to disproportionately receive both more frequent disciplinary actions and harsher disciplinary consequences throughout their K-12 experience in public schools. Black

boys comprise 8% of K-12 enrollments, but 18% of students who are subject to restraint or seclusion, and White boys represent 26% of all K-12 enrollments, but 43% of students who are subject to restraint or seclusion (USDOE, 2014).

Of particular concern in this study are school environments at the middle school level. Middle school is a challenging time for students and schools, and a decisive time in determining educational attainment (Middle School Matters, 2015). Research shows a relationship between sixth graders' rates of absenteeism, academic performance, and behavioral problems and the likelihood of graduating from high school (Balfanz, 2009). Indeed, studies show that the frequency of discipline referrals in the sixth grade predicts school suspension in ninth grade (Irvin, Tobin, Sprague, Sugai, & Vincent, 2004).

The consequence of boys' overrepresentation in school discipline extends well beyond the classroom. Boys have increased rates of juvenile delinquency and incarceration (Civil Rights Project, 2000; Noguera, 2009; Skiba & Knesting, 2001). In 2013, approximately 1.6 million Americans were incarcerated; of these, 1.5 million inmates were male. Racial and ethnic disproportionality was also notable among these prisoners where 37% were Black, 32% White, and 22% Hispanic. The consequences for society are significant as 58% of male prisoners are 39 years old or younger, representing lost parents, and lost workers. For specific communities these losses are staggering. In 2013, 3% of all Black, male Americans were incarcerated, as opposed to 1% of all Hispanic, male Americans, and .5% of White, male Americans (Carson, 2014).

In an attempt to ameliorate the nexus between student discipline and these lifetime impacts, many policies, programs, and procedures exist to improve student behavior. But, many of these focus on students as the origin or cause of the problem. Unfortunately, few of these efforts focus on the social context of schools as related to negative behavior (Metzler et al.,

2001). One attempt, however, eschews blame-fixing and tackles improvement of school culture. By using explicit instruction to teach expectations, helping staff understand and clarify rules, and reinforcing desired behaviors, School-wide Positive Behavior Supports (SWPBS) have been shown to improve school culture (Nocera, Whitbread, & Nocera, 2014).

Children take behavioral cues from their environments and internalize the behavioral expectations of others around them (Owens, 2016). SWPBS promotes a pro-social environment where positive behaviors are explicitly taught, modeled, and rewarded (Metzler et al., 2001). Punitive school environments do not improve outcomes for boys, or promote the attitudes and behaviors more likely to result in graduation and college enrollment (Aud et al., 2010). Failure to graduate, learn skills, and participate in American communities costs our nation the talents and contributions of too many young men. Research suggests that culturally responsive models of SWPBS facilitate positive behavior in schools for diverse student populations (Vincent, Randall, Cartledge, Tobin, & Swain-Bradway, 2011).

Statement of the Problem

Disproportional rates of school discipline for male students that begin in preschool persist as boys continue into middle school and beyond (Noguera, 2009; Noguera & Wing, 2006; Skiba et al., 1997; Skiba et al., 2011; Slocumb, 2004; USDOE, 2014). The need to improve boys' success in school is significant. It is estimated that improving male high school graduation rates by 1% would save well over $1 billion or $2100 per male student through increased earnings and decreased rates of incarceration (Lochner & Moretti, 2004).

Middle school disciplinary referrals have significant implications for high school success or failure (Balfanz, 2009). Moving from the relative support and flexibility of elementary grades to the higher expectations of middle school makes this transition challenging for all adolescents.

Middle school students exhibiting negative behaviors likely become increasingly alienated from teachers and successful peers and disengaged from learning (Balfanz, 2009; Cregor & Hewitt, 2011; Losen, 2015; Skiba & Nesting, 2001; Wallace, Goodkind, Wallace, Bachman, 2008).

Purpose Statement

The purpose of this study is to examine differences between academic and behavioral outcomes for three cohorts of sixth grade boys enrolled at Starlight Middle School[1] over a period of three years. A comparison is made between pre-, partial, and full intervention data, during three years of implementation of SWPBS at this middle school. SWPBS was implemented as a universal, or school-wide, strategy representing the first of three tiers in a Response to Intervention (RTI) framework. The independent variables are race, special education, and socioeconomic status (SES). The dependent variables are office disciplinary referrals (ODRs), suspensions, and state standardized test scores.

Significance of Study

School-wide Positive Behavior Supports (SWPBS), implemented as a Tier 1 intervention, are intended to be an effective alternative to zero tolerance policies at the elementary level reducing office disciplinary referrals and suspensions (Bradshaw, Mitchell, & Leaf, 2009; Bradshaw, Waasdorp, & Leaf, 2012; Caldarella, Shatzer, Gray, K. Young, & E. Young, 2011; Horner Sugai, Anderson, 2010; Irvin et al., 2004; Sugai & Horner, 2006, 2009). Additional research is needed to understand the unique challenges and possible benefits of implementing SWPBS at the secondary level (Caldarella et al., 2011; Prewett et al., 2012).

While some research shows promise for SWPBS at the middle school level, none specifically suggests that SWPBS, as a Tier I intervention, prevents boys' entrance into school

[1] Starlight Middle School is a pseudonym.

disciplinary systems or slows the rate of boys' failure and dropout. There is a need to understand if there is a difference in boys' academic and behavioral outcomes when SWPBS is implemented with fidelity at the middle school level. There is a particular need for practice-based research that could be replicated in similar contexts (Metzler et al., 2001).

The significance of this study is made clear by the growing evidence within the literature that boys experience diminishing rates of success in school (Corbett & St. Rose, 2008; Kelly & Gurian, 2006; Skiba, Michael, Nardo, & Peterson, 2000; Skiba et al., 2011; Slocumb, 2004; Weaver-Hightower, 2003). This study has the potential to reinforce existing literature on middle school as a unique and influential time in the social and academic development of boys. Moreover, this study may contribute significantly to the literature on the impact of policy and practice on middle school boys' success or failure in school.

There is some research supporting the effectiveness of SWPBS as a systemic, RTI Tier 1 intervention for school improvement, but there is a need for more empirical studies focused on reducing negative student behaviors and improving academic outcomes for all students (Lassen, Steele, & Sailor, 2006). There is a gap in research that explores the possible link between Tier 1 strategies and improved educational outcomes for boys, who represent 51% of school enrollments (USDOE, 2014). This study adds to the literature by focusing on middle school which research shows is a critical time in boys' education, predicting success in secondary and post-secondary endeavors. Leadership philosophy and programming play a significant role in providing a culture of success for middle school students (Balfanz, 2009). This study further elaborates on the unique barriers middle school boys face while it highlights how identified interventions at school might improve outcomes for boys through evidence based practice.

This inquiry examines boys' overrepresentation in school discipline, special education, and school failure, and hypothesizes that SWPBS, as a proactive, student-centered, RTI Tier 1 strategy should positively impact the behavior of middle school boys. Though there is a growing body of literature about SWPBS at the elementary level, there is a need for practice-based research on its impact at the secondary level (Caldarella et al., 2011). RTI as a framework for improving student outcomes was implemented as a practice following passage of the Individuals with Disabilities Act (IDEA, 2004). Its original purpose was to respond to dissatisfaction with discrepancy models and to address the number of students placed in special education for specific learning disabilities. Perhaps as a consequence of this original implementation, there is little understanding, evidence, or research that describes a broader extension of RTI to general education (Sugai & Horner, 2009). The potential for the RTI framework to drive improvements in behavioral and academic outcomes lies in its system of accountability through ongoing analysis of student responsiveness to interventions and supports provided at each tier.

Positive Behavior Intervention and Supports (PBIS) was originally conceived of as an intervention for students with disabilities. PBIS now functions within the multi-tiered framework of RTI, offering a continuum of evidence-based processes and practices to promote success for all students. Specifically developed to provide evidenced-based interventions focused on students with behavioral disorders, PBIS has evolved and expanded to include specific protocols for use as a school-wide strategy (Sugai et al., 2000). Within this framework, PBIS recognizes and addresses the interrelatedness of student behavior and academic success, and it reinforces the importance of a positive school culture in cultivating that success (Chard, Harn, Sugai, & Horner, 2008). When implemented as an RTI Tier 1 intervention, PBIS has widely become known as SWPBS, a system of strategies, policies, and practices to benefit all

students. In spite of this expanded purpose, there is little research on its overall impact, particularly at the secondary level, and virtually none on its impact on boys, despite declines in nearly all measures of boys' school success.

In addition to examining the unique barriers to school success for boys, and implications for improved practice, this dissertation has implications for policy. As boys make up the majority of students 1) receiving disciplinary consequences that remove them from the instructional environment, 2) receiving special education, and 3) dropping out of high school, this study has the potential to inspire improvement models for middle schools that do not leave either half of the human race behind at this critical juncture in their educational lives (Gurian, 2006).

Research Questions

The research questions that guide this study are:

1. During the three years of Starlight's implementation of School-wide Positive Behavior Supports (SWPBS) under study, (2011-12, 2012-13, 2013-14), what is the difference in office discipline referrals (ODRs) and suspensions for sixth grade boys and how does this compare across demographic groups?
2. During the three years of Starlight's implementation of SWPBS under study, (2011-12, 2012-13, 2013-14), what is the difference in the state standardized mathematics test scores and the state standardized English/Language Arts (ELA) test scores for sixth grade boys and how does this compare across demographic groups?
3. How have Starlight's state standardized test scores changed for sixth grade boys during 3 years of SWPBS implementation, (2011-12, 2012-13, 2013-14), when controlling for student demographics, ODRs, and suspensions?

Comment [JE1]: Over what period of time?

4. How have Starlight's suspension rates changed for sixth grade boys during 3 years of SWPBS implementation, (2011-12, 2012-13, 2013-14), when controlling for student demographics, including ethnicity, special education, and socioeconomic status (SES)?
5. What are the differences in Starlight's ODRs and suspensions for sixth grade boys above and below the state standardized ELA and mathematics cut score during the three years under study, (2011-12, 2012-13, 2013-14)?

Delimitations

The study is limited to an urban, middle school located in the Midwest, where I was an administrator. Middle school boys are the population of interest, and there were over 250 male students enrolled in sixth grade each year.

The study examines data over a three-year period from August 2011 through May 2014. During year one, SWPBS had not been implemented. In year two, SWPBS was partially implemented. Year three of the study was the only year of full implementation of SWPBS as a Tier 1 behavioral intervention.

The student demographic variables are limited to grade level, race, special education, and SES. I chose to gather and analyze data including ODRs, suspensions, and state standardized test scores of sixth grade, male students, during the three-year period of the study.

Definition of Key Terms

- *Exclusionary Discipline.* Removal from classroom, instruction, or school (Skiba et al., 2011).
- *Invitational Education.* Invitational Education is an educational theory of practice framed on the idea that organizational culture is never neutral and instead promotes either success or failure for all or certain groups of members. It theorizes that schools can be

intentionally designed around the premise that all students can realize their full potential (Shaw, Siegel, & Schoenlein, 2013).

- *Invitational Theory and Practice (ITP).* An ethical theory of practice based on a set of assumptions including: leadership matters, leaders can positively influence organizational culture and structure to be equitable, open, welcoming, and focused on reinforcing positive behavior, and shared success (Shaw et al., 2013).
- *Middle School.* An intermediate school between elementary school high school, typically for children in the fifth, sixth, seventh, and eighth grades (Balfanz, 2009).
- *Office Discipline Referrals (ODRs).* Any disciplinary referral that removes a student from the classroom for the purpose of administrative action (Irvin et al., 2004).
- *Pro-social behavior*. Behavior that demonstrates that the individual cares about the group and the group cares about the individual. (Bradshaw et al., 2012; Osterman, 2000).
- *Response to Intervention (RTI).* A multi-layered framework, often with three tiers, designed to support all students and provide additional interventions and/or early identification of special needs. RTI provides a perspective from which to analyze student data to determine the effectiveness of whole school, small group, or individual strategies, and offer alternative strategies to ensure success for every student. RTI provides a structure for analyzing response to both academic and behavioral supports at each tier (Bender & Shores, 2007).
- *School-Wide.* This means every student experiences and benefits from the treatment, intervention, system, policy, or practice (Horner & Sugai, 2009).
- *School-Wide Positive Behavior Supports.* Sometimes referred to as Positive Behavioral Interventions and Supports (PBIS) or, when school-wide, SWPBS or SW-PBIS. For this

research SWPBS is used when referring to School-wide Positive Behavior Support. SWPBS refers to a school or district-wide protocol for the explicit teaching of behavioral expectations, focused on common language, consistent consequences, and reinforcement of positive behaviors (Horner & Sugai, 2009)

- *Social Emotional Learning.* A process for the explicit instruction of self-regulation, building positive relationships, and positive function within a group or organization (Weaver-Hightower, 2003).
- *State standardized test.* The assessment used in a comprehensive, statewide testing program to measure students' mastery of basic skills in reading, writing, and mathematics. All students in grades 3 through 8 and high school sophomores participate in this testing program (CTB/McGraw-Hill, 2014).
- *Suspensions.* Temporary removal from the classroom as a disciplinary action lasting from days to weeks (Skiba & Knesting, 2001; Skiba et al., 2011).
- *Tier 1.* The first tier within a RTI framework, defined as universal or school-wide academic or behavioral interventions or supports. In either case, it is provided in the general education environment, and it is expected that at least 80% of students respond positively to the intervention. It involves evidence-based practice that provides a cohesive, unified approach using common language, practices, and measures to determine effectiveness (Bender & Shores, 2007).
- *Tier 2.* The second tier within a RTI framework, used following data analysis of student responsiveness to Tier 1. Provides more intensive support in addition to Tier 1. It identifies and applies targeted interventions to support students who are not responding to either Tier 1 academic or behavioral supports. Interventions within Tier 2 are provided in

the general education environment, but may involve consultation with specialists or more intensive progress monitoring. Tier 2 should serve 15% or fewer students, on the assumption that Tier 1 is effective for 80% or more students (Bender & Shores, 2007).

- *Tier 3.* The third tier within a RTI framework, used following data analysis of student responsiveness to Tiers 1 and 2. This is the most intensive intervention, and it should be needed for 5% or fewer students in a school where evidence based practice has been successfully employed. Tier 3 interventions are often a one to one, designed to specifically meet the behavioral or instructional needs of each individual student. This is sometimes used for students when a learning disability is suspected. (Bender & Shores, 2007).
- *Traditional School Discipline.* Code of conduct or student handbook used in schools or districts to provide continuums of consequence in response to negative student behavior (Sugai & Horner, 2002).
- *Universal supports*. Primary, tier (Tier 1), school-wide provisions designed to create a shared understanding of behavioral expectations to ensure success for all students (Burke et al., 2015).
- *Zero Tolerance.* A school or district policy mandating a specific, usually exclusionary, response to a wide range of student words, actions, or behaviors, regardless of grade level or context (Skiba & Knesting, 2001).

Summary

The study is organized in five chapters followed by references and appendices. Chapter two reviews the literature regarding boys' barriers to success in school, the unique challenges of middle school, and SWPBS as a Tier 1 intervention. It includes a conceptual and

theoretical framework for the study. Chapter three outlines the methods, research design, sample choice, measures, data collection, and data analysis. Chapter four presents an analysis of data and discusses the results. Chapter five summarizes the study including unanticipated outcomes, implications for action, and recommendations for further research.

Chapter one presents the importance of studying boys' school failure and drop out and the potential for SWPBS as a Tier 1 intervention to make a difference. It establishes middle school as a pivotal time with far reaching consequences for future academic and economic success. Increasing knowledge of SWPBS implemented at the middle school level can provide a necessary model for supporting boys for replication and study. Basic delimitations and key terms are presented. Chapter two creates a framework for this study and provides a review of the literature.

CHAPTER TWO: LITERATURE REVIEW

This analysis of the literature explores current knowledge about how and why middle school boys are failing. It examines the influence of school leaders in implementing strategies to overcome barriers to boys' achievement at this developmental stage through the theoretical framework of Invitational Theory. This investigation takes the position that middle school boys occupy a particular and vulnerable point on the educational continuum and that a school improvement program has the potential to impact them positively or negatively, and moreover, that school leadership plays a significant role in the implementation and outcomes associated with such an improvement program. The disposition of the leader, his or her commitment to implement a specific program, and his or her ability to lead others to buy in to the program matters (Middle School Matters Institute, 2015).

The next part of the review examines the conceptual framework of School-wide Positive Behavior Supports (SWPBS) as an evidence-based, Tier 1, RTI system for supporting all students' social and academic success (Horner, Sugai, & Anderson, 2010). The literature review focuses specifically on the unique and critical role middle school plays in determining boys' future achievement and how SWPBS impacts middle school boys' behavioral and academic outcomes.

The literature review then discusses barriers for boys in middle school including the negative impacts of zero tolerance, suspensions, disengagement, and special education. The next section considers methods for improving middle school boys' success, which includes the framework of SWPBS implemented as a Tier 1 RTI strategy. It contains a review of research on the impact of SWPBS on ODRs, suspensions, and academic performance. Critiques, suggesting that concerns about boys' failure in school are shared. Finally, a summary of the literature

review is provided. The literature review is organized into three main categories and six subcategories (see Appendix A).

Theoretical Framework

Invitational Theory provides an evidence-based theoretical framework for school leaders to construct a pro-social and preventative approach to shaping school culture around positive behavior management (Haigh, 2011; Lee, 2012; Okaya, Horne, Laming, & Smith, 2013; Purkey & Strahan, 1995; Shaw, 2013; Shaw & Siegel, 2010; Usher & Pajares, 2006). Founded on theories of self-perception and self-efficacy, Invitational Theory is an applied field, suggesting that positive messages sent and delivered within a community have a powerful influence on the success of the individuals within that community. This theory stresses that learning is enhanced through positive educational experiences within a school culture built on respect, trust, optimism, and intentionality (Haigh, 2011).

Invitational Theory offers a perspective that leaders' philosophical approaches and belief systems about their own self-efficacy, or power to be influential, impact their performance personally and professionally (Shaw & Siegel, 2010). Self-efficacy is developed through personal accomplishments, observing others' success, encouragement, and managing responses to physiological states (Pajares & Urdan, 2006). Decades of research confirm Bandura's (1977) assertion that self-efficacy beliefs accurately predict academic, personal, and professional performance. It may be that the self-efficacy of students, staff, and leaders are intertwined and interdependent.

Intentionality is a key concept of Invitational Theory, suggesting that leaders' awareness of their own self-efficacy and their capacity to influence others can strengthen the implementation of policies designed to enhance student achievement (Haigh, 2011). SWPBS

provides an instrument for leaders to uniformly and intentionally deliver positive messages about student behavior with the goals of improving educational quality and experiences for students, improving the school environment for all stakeholders, and eliminating negative behaviors (Carr et al., 2002). This is of particular relevance at the middle school level when academic and behavioral expectations increase, and the more familial and forgiving elementary school supports are left behind (Usher & Pajares, 2006). The stakes may be highest for boys, who experience disproportional rates of suspension and expulsion (United States Department of Education [USDOE], 2016).

Conceptual Framework

As described in chapter one, males in America are more likely to experience school discipline, be identified for special education, and are far more likely to be incarcerated (Civil Rights Project, 2000; Noguera, 2009; Skiba et al., 2011). Males are less likely to graduate from high school or college (Owens, 2016). Black and Hispanic males are at even greater risk for negative educational, social, and economic outcomes (Civil Rights Project, 2000; Noguera, 2009; Skiba et al., 2011). Academic and behavioral barriers for boys in the sixth grade have lasting impact on future educational success (Balfanz, 2009). It is important to examine more carefully the specific barriers associated with school failure for boys.

Rates of suspension and expulsion of students at the secondary level have steadily climbed for over four decades, from one in thirteen in 1973 to one in nine in 2010 (Children's Defense Fund, 2014). Overall, reported incidents of school discipline in the United States doubled between 1970 and 2011 (Cregor & Hewitt, 2011). Problems for boys arise early in their school experience where boys represent 54% of preschool enrollments, but 79% of preschool suspensions (USDOE, 2014). The problems of boys continue throughout their K-12 experience,

also resulting in disproportional discipline, failure, and dropout within every subgroup (Slocumb, 2004; USDOE, 2014). Zero tolerance policies, as a widespread disciplinary response, have intensified the exclusion of boys from school (Gregory et al., 2011; Owens, 2016).

In spite of research pointing to the damaging consequences of these forms of exclusionary discipline, office disciplinary referrals and suspensions continue to be the most frequent forms of punishment in schools (Caldarella et al., 2011; Cregor & Hewitt, 2011; Gregory, Skiba, & Noguera, 2010). Some research has focused on the academic achievement gap of certain groups of students, including Blacks, Hispanics, and Native Americans. Less attention has been directed to the disproportionate disciplinary consequences, both in frequency and severity, among these same groups and the potential relationship between school discipline and school failure (Gregory et al., 2010; Losen, Hodson, Keith II, Morrison, & Beltway, 2015). There is even less acknowledgement that within each of these groups, boys are the most frequent recipients of these forms of discipline. During the 2013-2014 school year, nationally, Black boys comprised 8% of all students, but 19% of students expelled without educational services, while White boys represented 26% of all students, but 35% of students expelled without opportunity for alternative instruction (USDOE, 2016).

As communities, schools do not exist in isolation from society at large, instead operating as open systems, subject to the inputs of educational practice of the time (Sergiovanni, Kelleher, McCarthy, & Fowler, 2009). Zero tolerance policies have been used systematically and bureaucratically to manage schools with the aim of providing uniform solutions to perceived challenges to student safety. These efforts attempt to "routinize problem solving," but, in the process, they also eliminate the variable of personal relationships through a programmed and hierarchical response in which students have little voice (Hanson, 2003).

School leaders influence the culture and climate of schools by choosing and implementing academic and behavioral strategies that are either inclusive or exclusive (Skiba et al., 2000; Usher & Pajares, 2006). The selection of such strategies contribute to a school community that can either promote or deny a sense of belongingness to individuals or select groups of students, including boys (Osterman, 2000). Substantial research suggests that SWPBS offers a contrasting pro-social behavior management strategy to counter the negative consequences of disciplinary practices focused on exclusion or removal of students (Bradshaw et al., 2009; Bradshaw et al., 2012; Caldarella et al., 2011; Horner et al., 2010; Irvin et al., 2004; Sugai & Horner, 2006, 2009). Building the practical research base about pro-social strategies that create inclusive school communities for all students is important as a means to shed light upon alternatives to the widely deployed zero tolerance policies which have not been shown to improve school safety or student outcomes (Cregor & Hewitt, 2011; Fenning, Theodos, Benner, & Bohanon-Edmonson, 2004; Losen et al., 2015; Skiba et al., 2011).

Invitational Theory

It is arguable, for better or worse, that the recent history of American education is composed of decades of school reforms, school improvements, and school restructuring (Marzano, 2003; NCLB, 2001; Purkey & Strahan, 1995; Schmoker, 2011). Many of these efforts are predicated on the perception that schools are failing to keep pace, leaving our nation at a competitive disadvantage (Sergiovanni et al., 2009). Reforms often align with a classical organizational theory in which a hierarchical order is maintained, and in which students occupy the lowest echelon. Within this structure is the assumption that if schools are working efficiently and effectively, students will be transformed into the workers that American society needs to compete (Hanson, 2003).

Zero tolerance, as a policy instrument applied to foster compliant student behavior, fits neatly within this organizational and leadership model, empowering those in authority to make unilateral decisions based on rigid policies that ignore the socio-emotional wellbeing and developmental level of students and, strikingly, the primary educational function of schools to ensure student success. Such policies focus on ridding school environments of perceived problems rather than prevention and diffusion of problem behavior (Civil Rights Project, 2000). They fail to consider students as children and capable learners who are open to instruction and positive influence (Skiba & Knesting, 2001).

Invitational theory offers an alternative leadership ideology that contrasts sharply with the idea that students are independent agents within the school community who actively choose to defy authority and instead focuses on the power of positive school environments and influential relationships (Benedict, 2013; Haigh, 2011; Lee, 2012; Okaya et al., 2013; Shaw & Siegel, 2010). Its fundamental premise is that schools are communities in which stakeholders are interdependent and each is capable of reaching his or her highest potential if given the opportunity to do so (Purkey & Strahan, 1995).

Invitational Theory emanates from a humanist tradition and has evolved into the sphere of education in the form of Invitational Education Theory (Shaw et al., 2013). Invitational Theory provides a structure for supporting inviting behavior in five domains: people, place, policies, programs, and processes (Shaw et al., 2013). In the first domain, people, Invitational Theory considers reaching the full potential of all school stakeholders to be the highest priority. It holds that positive, influential relationships nurture both staff and students. The second domain within this theory is place which includes the school environment, physical maintenance and capacity of buildings, as well as the appropriateness of the campus to meet the needs of the

school community. It considers the attractiveness, accessibility, efficiency, aesthetics, and warmth of the campus. The third domain, policies, examines inclusiveness, operations, expectations, and the language with which they are conveyed. Program planning is the fourth domain within Invitational Theory, and it is assessed by its capacity to build connections between and among staff and students, and whether programs are equitable and effective. Finally, processes, which comprise the fifth domain, are developed to promote success, to be democratic, and inviting (Haigh, 2011; Purkey & Strahan, 1995; Shaw et al., 2013). Invitational Theory reflects a concept of schools as democratic communities where communication, collaboration, trust, and respect promote social and academic growth (Shaw & Siegel, 2010). Through the use of inviting language and behaviors, school leaders can embed these concepts into school culture as a mechanism for leading for positive change (Lee, 2012).

SWPBS within an Invitational Theory Leadership Model. Implementing SWPBS in the context of Invitational Theory requires that school leaders to first conceive of schools as communities. This approach is missing in classical and scientific management organizational frameworks for schools that treat students more as deficient and defective components to be repaired or removed than active participants in the teaching and learning cycles of schools (Hanson, 2003). In an understanding of schools as communities, individuals matter to the group, and the group matters to the individual (Osterman, 2000).

In the complex, transitional phase of adolescence, when students enter middle school, the sense of self-efficacy engendered in a school community has significant impact on student outcomes (Middle School Matters, 2015; Usher & Pajares, 2006). Invitational Theory suggests that students benefit when schools move from a factory model to a family or community model (Haigh, 2011; Purkey & Strahan, 1995; Shaw et al., 2013). Although there are instances where

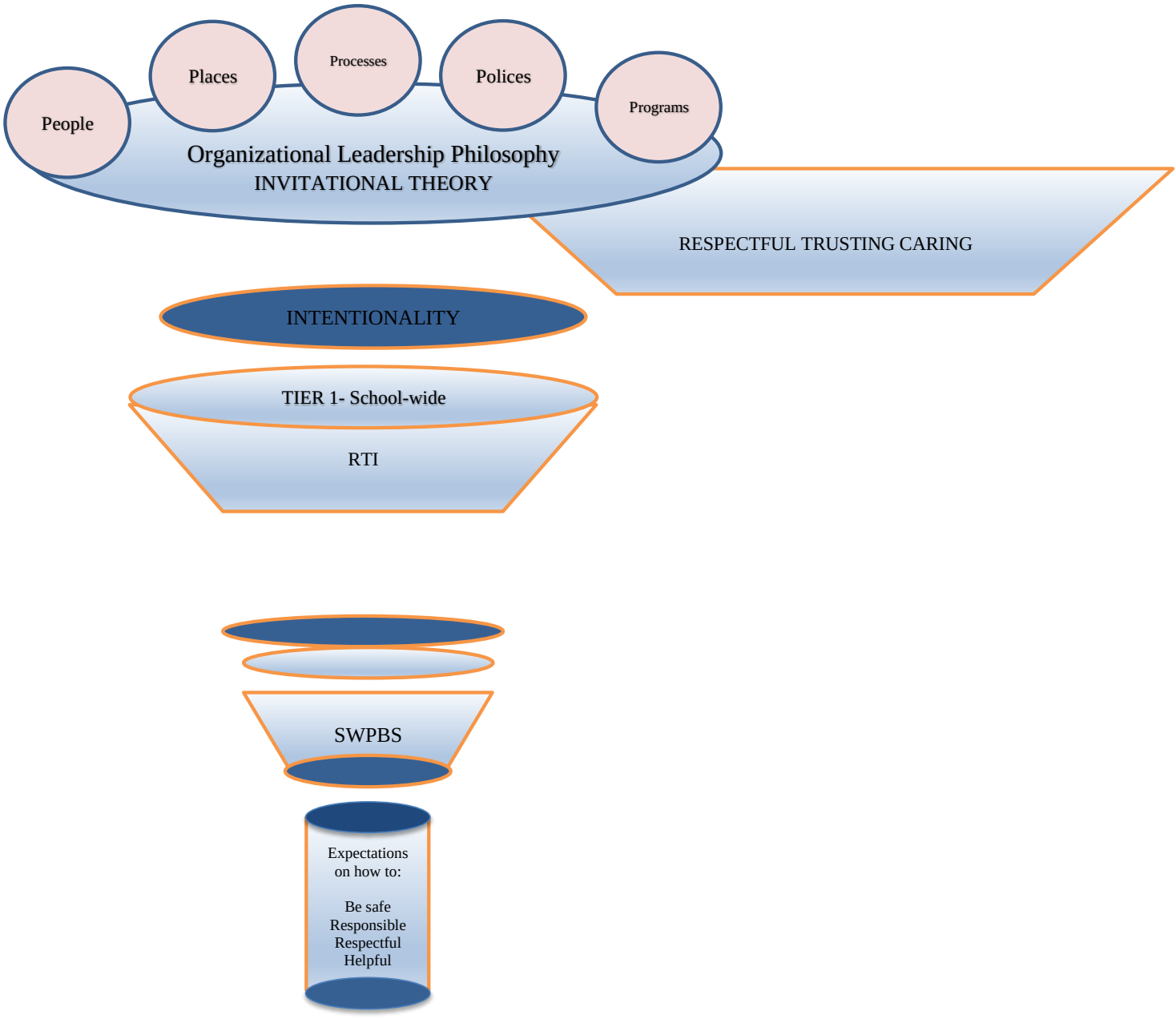
school leaders sometimes naturally, even unconsciously, construct a sense of family or community in their schools, Invitational Theory offers an opportunity for leaders intentionally to consider their options and decisions within this framework (Haigh, 2011).

School-wide Positive Behavior Supports (SWPBS) is a complex and integrated system of practices that provides an organizational structure for instructional decision-making and establishing school culture (Horner et al., 2010). Central to decision-making within the framework of SWPBS is the belief that a positive school culture benefits every student. The impact of school leaders' philosophies in establishing practices consistent with that belief cannot be understated (Caldarella et al., 2011, Sugai & Horner, 2009; Vincent et al., 2011). The success or failure of SWPBS is the result of complex organizational processes and the active participation of stakeholders, especially school leaders. Simply put, the purpose of SWPBS cannot be attained without the active participation of strong, committed school leaders (Gage, Sugai, & Lewis, 2013).

SWPBS offers a behavior management program that considers the five principles of Invitational Theory as a method of building knowledge of expectations, providing a vehicle for informed choices, and for building student and staff self-efficacy (Bradshaw et al., 2010).

Figure 1 offers a visual model integrating the three important, interrelated, and evidence based constructs of Invitational Theory, RTI, and SWPBS. Invitational Theory offers an organizational leadership philosophy, RTI provides a system for measuring student outcomes, and SWPBS is the framework for implementing positive behavioral strategies. Within the context of middle school, it is hypothesized that this approach addresses the numerous challenges boys face at this level.

Figure 1. *Framework for implementation of SWPBS in middle school*



Note. A visual representation of an integration of Invitational Theory as a foundational framework and RTI as a conceptual framework for implementation of SWPBS as a pro-social, school-wide, Tier 1 intervention. Adapted from multiple sources: ("Examining the Evidence Base for School-Wide Positive Behavior Support," by R. H. Horner, G. Sugai and C. M. Anderson, 2010, *Focus on Exceptional Children, 42*, p. 6. Copyright 2010 by Love Publishing Company.; "Invitational Education: Theory, Research and Practice," by M. Haigh, 2011, *Journal of Geography in Higher Education, 35*, p. 301. Copyright 2011 by Routledge, Taylor Francis Group.; "Response to Intervention: A Practical Guide for Every Teacher," by C. Shores and W. N. Bender, 2007, p. 31. Copyright 2007 by Corwin Press, Inc.

Challenges to Boys' Crisis in Education

Ample evidence exists that gender inequity in school practices for decades left girls underserved (Corbett & St. Rose, 2008). An emerging literature articulates concerns that the current, punitive culture and climate of many schools underserves boys (Carr-Chellman, 2011; Owens, 2016; Skiba et al., 2011; Weaver-Hightower, 2003). This notion does not, however, go unchallenged. There are critiques in the literature that challenge the notion that there is a boys' crisis in education. This perspective seems, on the surface, to be an attempt to avoid negating the gains made through decades of tireless advocacy and action to realize equity for girls in school (Corbett & St. Rose, 2008; Weaver-Hightower, 2003). Clearly, educational gains for girls do not inherently undermine educational success for boys (Corbett & St. Rose, 2008). It is not the case that schools can only successfully serve certain subsets of students. Indeed, in a democracy, public education is often the only vehicle for social mobility for children, across all demographics (Blankenstein, 2004). In an era of standardized testing and data driven decision making, it has become clear that not all schools are structured to create the opportunity for success for all students (Fletcher & Tienda, 2012).

Recent research points to systemic disadvantages for boys based on differences in boys' social emotional and cognitive development and the structure of schools (DiPrete & Jennings, 2012; Owens, 2016). The systemic failure of boys in schools, however, is not the result of schools becoming more feminized as girls have experienced improved academic outcomes

(DiPrete & Buchman, 2013). On the contrary, in spite of nearly identical cognitive capacities, research shows that girls have made steady improvements in academic attainment, while boys' academic performance has remained stagnant (Owens, 2016). This has become increasingly problematic as the workforce skills of the 21st century are the very skills that boys typically lag behind in developing. Today's economy places a higher value on the attainment of critical thinking skills than the more traditionally male occupations of the past which required physical strength (DiPrete & Buchman, 2013). For example, technical occupations within advanced manufacturing now require the so called "soft skills" of communication, creativity, teamwork, and initiative (Lykins & Davis, 2016).

Research reveals that some recent programmatic efforts to improve outcomes for boys including increasing the number of all male schools, increasing available traditional male activities, and/or boosting the number of male teachers do not yield the intended, positive, results. The reality is that boys perform better academically when they attend schools with girls where a particular emphasis is placed on extra-curricular activities. When school structures are developmentally appropriate, engaging, and function with the primary purpose of academic achievement for all, both boys and girls are more successful (DiPrete & Buchman, 2013). But, one area of significant disadvantage for boys continues to be school discipline. Research shows boys receiving harsher and more frequent discipline than girls, particularly since the widespread adoption of zero tolerance policies (Skiba et al., 2014; Wallace et al., 2008).

Zero Tolerance. Zero tolerance policies, when constituted as the foundation of behavioral management programs in schools, do not operate on the assumption that negative choices are the result of an absence of knowledge, choices, or self-efficacy (Bandura, 1977; Cregor & Hewitt, 2011). The unapologetic goal of zero tolerance policies was to punish

behaviors with severe consequences, presumably to send a message that would prevent additional incidents (Noguera, 2009; Skiba & Knesting, 2001). Initial support for the concept of zero tolerance policies came during the so-called war on drugs during the Reagan and Bush administrations. The movement to expand zero tolerance gained momentum following widely publicized incidents of school violence resulting in a call for harsher consequences for even minor infractions that could be construed as violent (Civil Rights Project, 2000).

The institutionalization of zero tolerance eliminated more nuanced, situational, and developmentally responsive approaches to negative behavior. Zero tolerance displaced the idea that influential relationships within the school community could positively influence student behavior (Skiba et al., 2011; Skiba & Knesting, 2001; Taccogna, 2003; Teske, 2011). Instead, zero tolerance became a universal, school-wide response aimed at preventing negative behavior by making examples of students by excluding them from the school community (Arcia, 2006; Civil Rights Project, 2000; Cregor & Hewitt, 2011; Noguera, 2009; Puzzanchera, 2011; Raffaele Mendez, 2003; Raffaele Mendez & Knoff, 2003; Skiba et al., 2011; Skiba & Knesting, 2001; Skiba et al., 2000). Under zero tolerance policies, one of the most common responses to negative behavior was out of school suspension (OSS). The results of this shift away from traditional disciplinary processes were staggering. In 2011, discipline rates were twice what they were in the 1970's, involving the suspension of over 3 million students at least once during the school year (Cregor & Hewitt, 2011). Though zero tolerance was originally aimed at addressing acts of school violence, suspension instead became widely used for subjective reasons and normative behavior such as disrespect, non-compliance, insubordination, and tardiness (Teske, 2011; Wallace et al., 2008).

School Violence. School violence, like all other aspects of American education does not exist in isolation from society. Increasing violence in society may be reflected in schools as subsystems of society, but it is public outrage directed at violence in schools that helps determine how educators and policy-makers craft the direction and intensity of the response in schools (Noguera, 2009). The result is that at any given point in time, attention and responses to a specific behavioral concern at a school, may not be logical or effective, but may be both emotional and political. The response to school violence has closely mirrored the response to violence in society, which has largely been in the form of removal from the community through incarceration (Cregor & Hewitt, 2011; Noguera, 2009). Just as boys are more frequently targeted for school discipline, more men are incarcerated in American prisons. In 2008, 96.7% of juveniles held in adult prisons were boys. In 2011, there were over 1.4 million juvenile arrests in the United States, and 71% were boys (Puzzanchera, 2011).

Concerns over boys' increasing disengagement and exclusion from school were drowned out by concerns over school safety. Too few voices of advocacy have been heard to question the removal of potentially violent adults from society or potentially violent students from schools (Daly et al., 2016; Noguera, 2009; Noguera & Wing, 2006; Teske, 2011). A growing body of research, however, has consistently disclosed two realities. First, those most likely to experience punishment in schools or society are disproportionately either Black or Hispanic, and in either case, they are disproportionately male (Wallace et al., 2008). Second, attempts to win the war on drugs, or to fight violence, phrases that place an intentional emphasis on changing negative behaviors with negative consequences, have failed (Civil Rights Project, 2000; Cregor & Hewitt, 2011; Noguera, 2009; Noguera & Wing, 2006, Skiba et al., 2011; Teske, 2011). If the ultimate goal of zero tolerance is eliminating violence through punishment and exclusionary practices, the

continued march of boys and men to prisons challenges the presumption that such policies will ever reach that goal.

Exclusionary Discipline. Instead of proving an effective deterrent, zero tolerance became an approach to school discipline that eliminated judgment of situational and developmentally appropriate responses to negative behaviors. Racial disciplinary disproportionality has been well documented for three decades, with Black students receiving far harsher and more frequent punishments in schools (Skiba et al., 2011; Wallace et al., 2008). Though the reasons for bias in disciplinary systems are hard to uncover precisely, racial bias has been documented so extensively that it is difficult to refute (Skiba et al., 2011; USDOE, 2016). And, when male students are considered, boys are punished more frequently, with 20% of Black boys compared to 12% of Black girls receiving out of school suspension (USDOE, 2014)

Disciplinary bias against boys in general feels intuitively defensible, particularly in a society where masculinity and femininity have rigid, binary definitions (Weaver-Hightower; 2003). In a patriarchal society, male aggression and violence is not only understood, it is expected, and though punished in schools, it is often glamourized in the media. Zero tolerance policies, however, eliminate discretionary decision-making that might take into consideration the effects of a society that encourages boys to demonstrate masculinity through competition, physical strength, and even aggression (Browne, 1998; Noguera, 2003; Owens, 2016). Instead, relying exclusively on punishment, such policies make no attempt to change negative behaviors through instruction, guidance, strengthened bonding to school, or restorative justice (Civil Rights Project, 2000; Osterman, 2000; Skiba et al., 2011; Wachtel, 1997).

The practice of exclusion from instruction, training, and socializing might be more palatable as a student advances grade levels, on the assumption that older students have more

experience in coping with the school environment, but for boys especially, negative behavior results in early removal (Owens, 2016). The failure to address unwanted behavior in a more instructional, inclusive, and pro-social way are evident as 82% of children suspended from preschool multiple times are boys. This pattern continues throughout the K-12 experience for boys. In 2014, boys received 67% of in-school suspensions (ISS) and 68% of first time out of school suspensions (OSS). Of students who received OSS multiple times, 72% were boys, and of students who were expelled, 74% were boys (USDOE, 2014). Middle school suspension, at the sixth grade level, is a predictor of high school suspension and failure (Balfanz, 2009; Raffaele Mendez, 2003).

Research provides substantial evidence of the inherently inequitable, and even arbitrary, enforcement embedded in the philosophy of zero tolerance. Through the enduring, virtually automatic, use of OSS, the negative impacts of zero tolerance on students are sustained, repeated, and cumulative throughout boys' school experience (Civil Rights Project, 2000; Noguera, 2008; Raffaele Mendez, 2003; Skiba et al., 2011).

OSS is characterized as removal from school, however a more accurate description is removal from learning. While safety is clearly the highest priority for schools, children are routinely excluded from learning for behaviors that are developmentally appropriate and non-hazardous. Myriad case studies provide examples of students of all ages being suspended or expelled for taking milk, throwing food, sharing cough drops, bringing nail clippers, or engaging in roughness at recess. Countless cases document incidents where students were sharing a resource, i.e. Midol, scissors, or where students gave contrary eyewitness reports to those accounts that resulted in punishment. Because of zero tolerance policies, there is little need for

schools to justify the issuance of harsh or inappropriate responses (Civil Rights Project, 2000; Skiba et al., 2011; Skiba et al., 2000).

If the purpose of school discipline is to ensure school safety, these incidents underscore both the subjective nature of determining what constitutes a threat to safety, and a lack of awareness of the real cost to students that result (Cregor & Hewitt, 2011; Marchbanks et al., 2015; Raffaele Mendez, 2003; Teske, 2011). The unfairness and injustice of some disciplinary actions undermine the sense of belonging to and trust in school as learning community. Particularly as students enter middle school and adolescence, the need to build trusting relationships with adults intensifies (Losen, 2015; Middle School Matters Institute, 2010; Osterman, 2000; Wallace et al., 2008; Teske, 2011).

The period of early adolescence is marked by significant change, including rapid physical growth, second only to the first two years of life. At this stage, children experience hormonal and emotional changes that can lead to feelings of awkwardness and self-consciousness. Additionally, brain research has shown that adolescence is a period marked by both risk taking behaviors and limited cognitive capacity to estimate the impact of those risks (Teske, 2011). For these reasons, middle school students need adult support and guidance in learning how to accept themselves and one another (Muir et al., 2006). In addition, instead of school becoming more relevant and engaging, the focus on standardized testing—a tsunami that floods the middle level as it overwhelms all of public education—places emphasis on individual competition and attainment and little emphasis on the emotional needs of students (Osterman, 2000).

Removal from the school community, in theory, results in removal of students exhibiting problematic behavior, and therefore, over time, should result in classrooms full of compliant, motivated students (Gregory et al., 2010; Noguera, 2009). Instead, a never-ending stream of

students flow out of school and into trouble (Cregor & Hewitt, 2011; Skiba et al., 2000). Rather than creating bonds with schools and adults in adolescence, suspensions and expulsions can intensify student perceptions that they are inherently and unavoidably in conflict with adults. Students are not oblivious to certain groups being the focus of disciplinary action and once noticed, may believe that the biased treatment of a group to which they belong means that no amount of effort they apply will ever be sufficient to avoid discipline and failure (Civil Rights Project, 2000; Skiba et al., 2011). In short, adolescents who are pushed out are also inclined to give up (Wallace et al., 2008).

Disengagement. Beginning a century ago with the educational insights of Dewey (1916), researchers have spoken frequently to the nature of learning as a social activity (Osterman, 2000). In this light, banishment from the instructional environment has significant academic consequences (Wallace et al., 2008). Students who struggle academically and behaviorally may already be isolated from the school community in elementary school. This isolation is compounded when they enter middle school and important transitions occur.

Beginning at this level academic and behavioral expectations intensify. At the same time, student misbehavior becomes more challenging (Caldarella et al., 2011). Some research indicates that a sharp rise in suspensions is likely to occur at the middle school (sixth grade) level (Arcia, 2006; Cregor & Hewitt, 2011). Other research suggests that this same period is when academic and disciplinary failure predict high school dropout (Balfanz, 2009).

Determining the precise cause of negative student behaviors is, at best, complicated. One cause, substantiated by research, is student disengagement from learning. If school can be understood as the workplace for students, research supports the idea that the workplace environment affects worker performance (Osterman, 2000). In this analogy, student misbehavior

is contextualized to the school community. If the student perceives that he is unwelcome, disrespected, or that his efforts are unrecognized, the likelihood of disengagement is intensified (Civil Rights Project, 2000; Osterman, 2000). Public schools have been widely criticized for failing students, with many state legislators supporting alternatives such publicly funded charter schools. The movement toward charter schools in the United States as an antidote to school failure, however, has had mixed results at best.

The federal government began requiring charter schools with an enrollment greater than 50 students to report school discipline data, in the 2011-2012 school year. A comprehensive review of that data found that Black charter school students were suspended at rates 10% higher than White charter students, and disabled charter school students were suspended at rates 10% higher than non-disabled charter students. Though the charter school discipline data were not broken down by gender, they did show the same alarming increase in suspension rates as children moved from elementary to secondary levels. The report concluded that some charter schools, like non-charter schools, continue reliance on unnecessarily harsh and exclusionary practices that are associated with both social problems and academic failure (Losen, Keith, Hodson, & Martinez, 2016).

Students with lower academic performance may already be at higher risk for removal from the learning community (Arcia, 2006; Losen et al., 2015). During suspension, time away from learning only increases the divide between them and their higher performing peers. Studies now point to the relationship between racial disproportionality in school discipline and the widely acknowledged racial achievement gap (Rausch & Skiba, 2004; Morris & Perry, 2016). Additionally, research has found that schools with higher suspension rates have more students receiving lower standardized test scores (Cregor & Hewitt, 2011). Suspensions may thus be part

of a cycle contributing to student failure wherein at-risk students experience more frequent school removal and less frequent academic support, inevitably leading to school drop-out (Gregory et al., 2010; Morris & Perry, 2016; Teske, 2011). This points to the need for more research examining the predominance of boys in school discipline and boys' lower graduation rates (USDOE, 2014; Corbett & St. Rose, 2008; Owens, 2016). What is clear is that exclusionary school discipline takes students out of the instructional environment and into the streets, where often unsupervised, excluded students often form relationships with other disengaged youth, increasing the risk of becoming teen parents, high school drop outs, or juvenile delinquents (Cregor & Hewitt, 2011; Skiba et al., 2000, Teske, 2011).

Boys to Men. The path out of school is also the path into the juvenile justice system, and if not addressed, into the prison system (Noguera, 2009). Boys are most vulnerable to disciplinary consequences just as they are transitioning into adulthood. At the secondary level, the rate of suspensions is four times greater than at the elementary level. High rates of suspension are correlated with drop-out, delinquency, and incarceration (Arcia, 2006; Losen et al., 2015). Attending school is a protective factor against involvement in the justice system. Research shows that intense, negative intervention frequently results in the criminalizing of youth for normal, adolescent behavior (Teske, 2011).

The economic cost of the widely acknowledged school to prison pipeline to young men and to society is staggering (Noguera, 2003; Marchbanks et al., 2014). The workforce of the 21st century demands social and academic skills that largely align with a solid high school education (Schmoker, 2011). As students disengage from learning, experience removal from the instructional environment, and drift farther from the goal of a high school diploma, the more marginalized they become in society. Adults who drop out experience poverty, illness, and job

loss at higher rates than those who graduate. The price students will pay for failure in middle school is likely to be, in some respects, a life sentence (Balfanz, 2009).

Boys in Special Education. Just as boys are punished with exclusion from instruction more frequently, they are also identified for special education three times more often than girls. This suggests a need for more research attention to the relationship between classroom banishment, academic failure, and special education identification (Gregory et al., 2010). Specifically, 76% of students identified with emotional disabilities and 73% of students diagnosed with learning disabilities are boys (Slocumb, 2004). Overall, boys are 51% of public school enrollments, but 66% of students identified with a learning disability (Gurian, 2006). Millions of boys have been diagnosed with and medicated for attention deficit disorder (ADD) and attention deficit hyperactivity disorder (ADHD) (Gurian, 2006).

Since boys are overrepresented in special education, this puts them in a kind of double jeopardy in school discipline, as students with disabilities are more than twice as likely to receive out of school suspensions as children without disabilities (USDOE, 2014). For boys of color with disabilities, the outcomes are worse yet with 27% of Black male students with disabilities and 34% of disabled, Multiracial, male students receiving out of school suspensions (USDOE, 2014). In addition to the absence of evidence that suspensions are effective in achieving the goal of reduced negative behaviors, there is increasing evidence that such practices actually increase negative outcomes for children (Raffaele Mendez, 2003; Solomon et al., 2012; Wallace et al., 2008).

Response to Intervention

Overrepresentation of specific subgroups of students, as well as delays in identification of students who would benefit from special education, led to alternative methods for determining

which students have learning disabilities (Shores & Bender, 2007; Sugai & Horner, 2009). These methods were articulated in both No Child Left Behind (NCLB, 2001) and the reauthorization of the Individuals with Disabilities Education Improvement Act (IDEA, 2004). The shared language that emerged from the regulatory provisions of both of these laws was, scientifically based research (SBR), reinforcing the idea that efforts to improve outcomes for students should be supported by research (Sugai & Horner, 2009).

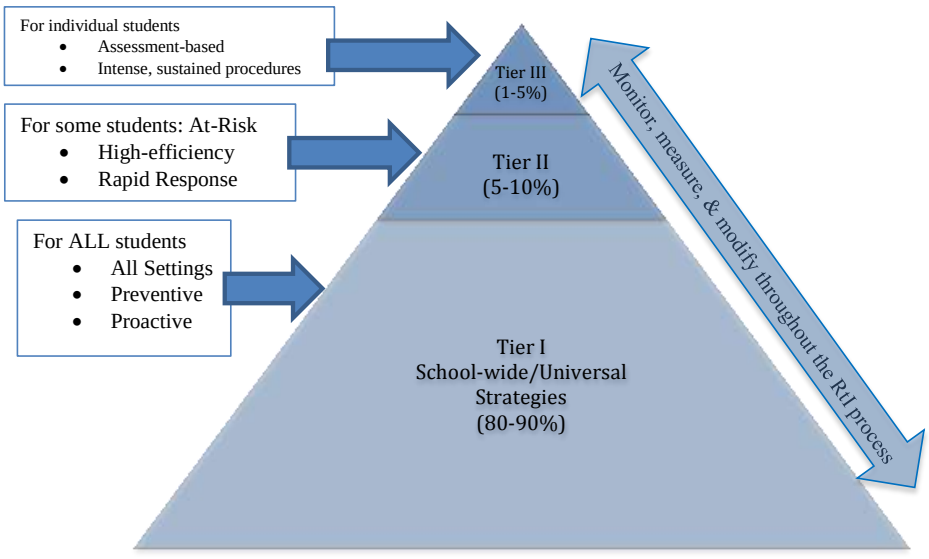
Changes to IDEA allowed students to have a determination of a learning disability through the monitoring and documentation of student responses to instructional interventions, now widely referred to as RTI (Shores & Bender, 2007). Although the literature does not provide a clear intent, path, or timeline of how RTI expanded from special education to general education, RTI entered the nomenclature, and often became misrepresented as a strategy, rather than as a method for monitoring the impact of strategies. The method for implementing behavioral RTI includes implementing scientifically based strategies, such as direct instruction of expectations, to benefit and positively influence the whole school culture. The effectiveness of such strategies is continuously monitored to determine impact, and more targeted strategies and supports are provided to students who were not responsive to whole school approaches (Sugai & Horner, 2009).

When used as intended, a tool for implementing and measuring specific strategies to meet intensifying and de-intensifying needs of students, RTI eliminates the ‘one size fits all’ approach to instruction and behavior management. Instead of simply acknowledging the failure of students to achieve school objectives, the learning environment and methods for delivery of instruction are reevaluated for effectiveness and, subsequently, altered by the instructor to meet the new understanding of the learning need(s) of individual students (D. Fuchs & L. Fuchs,

2006). RTI also requires a philosophical shift that takes responsibility for student failure away from things beyond the student's control such as family, disability, and socioeconomic status, and examines more carefully the quality of instruction, school environment, programs, and policies as a means to ensure student success (Sugai & Horner, 2009).

RTI Tiers of Intervention. RTI is widely, though not exclusively, understood as utilizing three tiers of intensifying strategies (see Figure 2). Tier 1 requires the effective use of scientifically based strategies in the general education environment. These are strategies used to support all students, and if effective, should result in success for 80% or more of the student population. The second tier identifies small groups of students, representing 15% or less of the student population, who need more focused strategies, but generally receive that additional support within the general education environment. The third and smallest tier offers intense, individual support to students, should include 5% or fewer students, and is often viewed as entrance into special education.

Figure 2. *Behavioral RTI Model*



Note. Adapted from "Response to Intervention: A Practical Guide for Every Teacher," by C. Shores and W.N. Bender, 2007, p. 31. Copyright 2007 by Corwin Press, Inc.

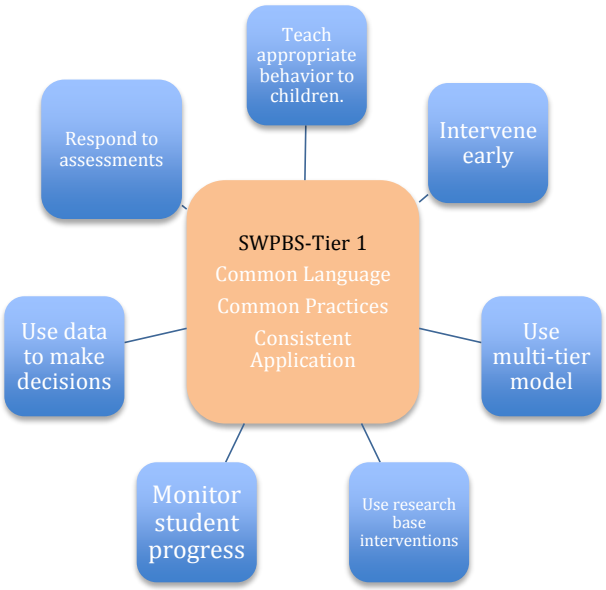
Two separate uses for RTI have evolved: academic and behavioral (Shores & Bender, 2007). This shift of responsibility from children failing because of their incapacity, to schools failing children because of institutional incapacity, has led researchers to seek alternatives to harsh, punitive, exclusionary practices such as zero tolerance often used in the lowest performing, most racially diverse, and poorest, urban schools (Civil Rights Project, 2000; Noguera, 2008; Skiba et al., 2011). RTI is described through a variety of models in the literature, but all share three fundamental characteristics: a focus on the premise that every student has an opportunity to learn through high quality instruction; a structure for school-wide screening, decision making is data driven; and the use of evidence based interventions with fidelity at every tier (Prewett et al., 2012). Within this structure, it is understood that students are under "neurological construction" and therefore growing and changing. This means that interventions to address problem behavior should not cast students permanently into a specific tier (Teske, 2011). Through the implementation of RTI, interventions should be differentiated, intensified, or de-intensified to ensure the least restrictive environment and most beneficial educational experience for all students (D. Fuchs & L. Fuchs, 2006).

SWPBS within the RTI Framework. SWPBS supports a tiered, differentiated approach to behavior management. It does so at Tier 1 by providing training and support for every member of the school community to understand and use common language, common practices, and consistently reinforce positive behavior. SWPBS is particularly adaptable as a Tier 1 behavioral intervention, even at the secondary level, because Tier 1 consists of the school-wide,

primary prevention program, policies, and processes implemented to benefit all students, suggesting it could help to address historical inequities in school discipline.

One of the most important inputs of Tier 1 SWPBS is the intentional instruction of a clearly articulated, developmentally appropriate set of behavioral expectations, and consequences for non-compliance. Figure 3 shows the components of implementation of SWPBS. Specific components include: organizing and training all staff, setting behavioral expectations, explicit instruction of behavioral expectations, positive reinforcement, and data collection systems (Caldarella et al., 2011; PBIS, 2016). The expected result is a cohesive, unified, and positive school culture that reduces reactive consequences that remove students from the instructional environment. Tiers 2 and 3 offer more intensive interventions as needed based on student response to Tier 1.

Figure 3. *SWPBS Tier 1 Implementation Model*



Note. A visual representation of the core principles of SWPBS Tier 1 support. Adapted from Positive Behavioral Interventions & Supports (PBIS). (2016). Tier 1 supports. Retrieved from http://www.pbis.org/school/tier1supports

As a Tier 1 system of support, SWPBS follows core principles (Positive Behavior Interventions & Supports [PBIS], 2016). It is based on the assumption that desired student behaviors can be learned and that school climate influences behavior. SWPBS aligns with the expectation of NCLB (2001) that interventions and curricula are scientifically based and relies on data monitoring and appropriate responses to data to measure student progress.

Through the process of data collection and analysis, SWPBS as a Tier 1 intervention accomplishes one thing without fail. It makes visible the number of students who are experiencing school discipline and uncovers which specific groups of students are more likely to experience all forms of school discipline including ODRs and suspensions (Irvin et al., 2004).

RTI in Middle School. As a framework for using evidence based practice to improve behavioral and academic outcomes, RTI can offer strategies to overcome the unique challenges that occur at the middle school level. Middle schools, like their primary school counterparts, have begun to implement RTI models (Caldarella et al., 2011). It is important to remember that, at the middle school level, there are idiosyncrasies that affect both students and teachers. Specialized small group instruction, pullouts, and even recognition of individual student needs become more difficult as students have more than one teacher and more than one classroom. Larger numbers of students make developing positive, influential relationships with school adults more difficult (Prewett et al., 2012). However, interventions that are adapted functionally and developmentally to the uniqueness of the middle school level can be effective.

Examples of evidence-based middle school interventions include not only communicating universal expectations and high quality instruction but also individual

interventions such as providing adult mentors and advocates (Caldarella et al., 2011). SWPBS is sometimes integrated into an RTI model as a universal prevention and tiered intervention framework (Solomon et al., 2012). Using such strategies may be especially important during the first year of middle school, often sixth grade, which has been shown to have significant implications for high school success or failure (Balfanz, 2009). Evidence suggests that developmentally appropriate and engaging intervention strategies that provide increasing support for students, guided by data informed responses, reduce the risk of disengagement and drop out for middle school students (Middle School Matters Institute, 2015).

SWPBS as a System of Practice

It is important to understand SWPBS from the literature as a system of interacting, interdependent, evidence-based practices, combining positive behavior support and behavior management strategies used in a variety of school-based settings including classrooms and common areas. In the classroom, where students spend the majority of in-school time, SWPBS supports the integration of behavioral expectations and academic achievement through the use of classroom routines and engaging instruction (Sugai & Horner, 2009). Examples of SWPBS strategies in non-classroom common areas include verbal and written expectations for positive behaviors in specific locations such as hallways, gym, and cafeteria. Behaviors are frequently reinforced through acknowledgement of adherence to procedures, calling greater attention to what is done well, rather than negative attention to deviations from expectations (Nocera et al., 2014).

Research suggests further that SWPBS as a universal, primary prevention system can have a positive impact on the overall organizational health of schools. Findings include

reductions in negative student behavior, increase in consistency of responses to improve student outcomes (Horner et al., 2010).

Culturally Responsive SWPBS. SWPBS has been researched and implemented since the early 1990's, and while there is ample evidence that it has been effective in supporting positive behavioral outcomes, there is some concern that it is not culturally responsive and effective for all students (Vincent et al., 2011). For example, some research shows Black and Hispanic students continuing to experience disproportional rates of school suspension following implementation of SWPBS (Cramer & Bennett, 2015; Vincent & Tobin, 2011). Data suggest that the consequences of zero tolerance policies remain harshest for Black, Hispanic, special needs, and poor children (Gonzalez, 2015; Gregory et al., 2010, Morris & Perry, 2016). Attention has been focused on the achievement gap for specific racial and ethnic groups, but a strong connection between disproportionate disciplinary practice and school failure has not been made (Gregory et al., 2010). Four decades of shifting demographics make a careful examination of this relationship increasingly important.

From 1972 to 2007, the percentage of White students in public schools in the United States decreased from 78% to 56%. In other words, 44% of the total public school population is comprised of racial/ethnic minority students. At the same time, the teaching force in the United States has remained primarily White and female. Despite this cultural mismatch, little has changed in teacher preparation programs to support the use of culturally relevant pedagogy (Brown-Jeffy & Cooper, 2011; Zygmunt-Fillwalk, Malaby, & Clausen, 2010).

One of the core principles of SWPBS is the development of a shared language and shared understanding of behavioral expectations. The goal of purposeful instruction of expectations is to reduce misunderstanding between teachers and students sometimes resulting in unjustified and

unnecessary disciplinary consequences. In this sense, SWPBS emphasizes sameness. Alternatively, culturally responsive pedagogy emphasizes difference. The goal of Culturally Responsive Schoolwide Positive Behavior Supports (CR-SWPBS) is to integrate these two frameworks (Vincent et al., 2011).

CR-SWPBS helps to develop an understanding of the disparity between teacher background and the home and community culture of students with a goal of improving social and academic outcomes. This requires a shift from viewing differences as problems to valuing differences as a source of strength (Brown-Jeffy & Cooper, 2011). This is a substantial change, challenging decades of reinforcement of the idea that student demographics alone place them at-risk. Recommendations to drive such change include adding professional development to increase cultural knowledge and self-awareness and examining decision making for cultural inequities. Awareness of racial and ethnic identity increases for students as they mature. Studies show that the combination of heightened awareness of students' own culture, combined with increased self-efficacy decreases problem behavior in middle school, suggesting a need to develop effective models of CR-SWPBS at this level (Vincent et al., 2011). Indeed, student experiences with discipline at the middle school level may become a positive or negative "tipping point" significantly influencing future success or failure (Cramer & Bennett, 2015).

SWPBS in Middle School. Middle schools vary widely. They span grade level configurations from fourth to eighth, they are large and small, rural and urban, stand alone, or wings of other secondary schools. Their academic and organizational structures can mirror elementary schools or secondary schools, but most often, students in middle schools are in more than one classroom and work with multiple teachers (Solomon et al., 2011). This variability of

structure makes implementing and measuring the impact of SWPBS at the middle school level more challenging, but perhaps even more consequential (Lassen et al., 2006).

Research suggests that rates of discipline referrals and disproportionality in discipline referrals for both office disciplinary referrals (ODRs) and suspensions intensify beginning at the middle school level (Cregor & Hewitt, 2011). Brain research has found that the behaviors likely to result in such disciplinary consequences are often normal, resulting from the underdeveloped, adolescent brain (Teske, 2011). Measuring the impact of SWPBS on ODRs is important, as they are the most frequently used and highly discretionary forms of school discipline (Losen, 2015). Suspension is often viewed as a more serious consequence, linked to school failure. However, students at the middle school level who received multiple ODRs for even mild forms of misbehavior, also were more likely to drop out (Balfanz, 2009).

Summary

There are serious, long-term consequences for boys linked to zero tolerance policies, also known as a "take no prisoners" approach to school discipline (Civil Rights Project, 2000; Skiba & Knesting, 2001; Skiba et al., 2011). Often referred to as the school to prison pipeline, the irony of the take no prisoners approach is that it results in the making of more prisoners (Cregor & Hewitt, 2011; Noguera, 2009; Skiba et al., 2014). In 2001, while one in every 1,724 women in America was a sentenced prisoner, the rate for men was one in every 112 (Puzzanchera, 2011).

If the measure of a school improvement strategy is its effectiveness for the majority of students, the use of zero tolerance as a strategy for improved school safety is a failure, especially for boys. The frequent use of school suspension has the more immediate impact of time out of an instructional environment. Evidence suggests that this has far reaching effects such as lower

academic attainment and higher rates of drop out (Arcia, 2006). In the United States, during the 2011-12 school year, 3.5 million children were suspended at least once. Of those, 1.5 million were suspended at least twice. With an average suspension of 3.5 days, that means that children were out of school 18 million days during a single academic year (Losen et al., 2015).

The result of lost time is costly. Fourth graders who missed three days during the month prior to taking the National Assessment of Educational Progress (NAEP) scored a full grade lower in reading (Ginsburg, Jordan, & Chang, 2014). At the middle school level, lost time is more costly. Sixth grade outcomes predict later academic success. Balfanz (2009) found that students earning a final grade of "F" in reading or mathematics, or a final indication of unsatisfactory behavior in sixth grade had only a 10% to 20% chance of graduating on time. He also found that in sixth grade even mild misbehaviors, if they persisted over time, reduced the likelihood of graduation.

Boys are falling behind in both high school and college graduation rates. The path to school success is linked to both cognitive and non-cognitive skills that begin early and build on one another over time (Bertrand & Pan, 2013). Boys have been shown to have fewer of these skills and a much greater likelihood of entering school disciplinary systems as a result (Owens, 2016). SWPBS provides an alternative framework for supporting all students (Sailor, Stowe, Turnbull, & Kleinhammer-Tramill, 2007). More research is needed to see if it correlates with improving middle school boys' behavioral or academic performance (Wallace et al., 2008).

The fairly recent policy shift from local autonomy of schools operating as they saw fit, to the ubiquitous use of standardized tests, laid bare the reality that some children were doomed from the start to academic failure because of their demographics, especially if they were Black, Hispanic, or poor (Sergiovanni et al., 2009). Extensive research shows that racial

disproportionality exists in both school discipline and special education (Noguera, 2009; Skiba et al., 2011; Skiba et al., 2014). Research shows that SWPBS holds promise for reducing school disciplinary referrals and improving academic outcomes (Horner & Sugai, 2009; Horner et al., 2010; Lassen et al., 2006). There is a need for additional research focused on middle school as a significant period for students' launch into adulthood, that can help to identify strategies to improve outcomes for boys, and that have specific value for practitioners.

CHAPTER THREE: RESEARCH METHODS

The framework for School-wide Positive Behavior Supports (SWPBS) was chosen as a strategy for implementation at Starlight Middle School in response to frequent student discipline referrals. The purpose of this study was to analyze the difference in disciplinary and academic outcomes for sixth grade boys over a three-year period, including the year prior to implementation of SWPBS, the year of partial implementation of SWPBS, and the year of full implementation of SWPBS. An additional purpose of this study was to analyze if there were differences in academic performance or disciplinary fraction by race, special education, or socioeconomic status (SES).

The site of the study was a large middle school in the Midwest with an enrollment of over 1,100 fifth and sixth grade students. As noted in chapter two, boys tend to be more frequently referred for student discipline both nationally and at Starlight Middle School (USDOE, 2014). Sixth grade outcomes have been shown to be influential in determining later academic and social success for boys, so sixth grade male students are the focus of this study (Balfanz, 2009; Middle School Matters, 2015).

As described below, during the first year under study, Starlight Middle School followed a traditional school disciplinary model articulated in the student handbook. During the second year of the study SWPBS was partially implemented, and during the third year SWPBS was fully implemented (See Table 3.2 of SWPBS Implementation). This chapter describes the research design, study sample, and components of disciplinary system in use for each year of the study, as well as data collection, data analysis, and the limitations of the study.

Research Questions

The research questions that guided this study were:

1. During the three years of Starlight's implementation of School-wide Positive Behavior Supports (SWPBS) under study, (2011-12, 2012-13, 2013-14), what is the difference in office discipline referrals (ODRs) and suspensions for sixth grade boys and how does this compare across demographic groups?
2. During the three years of Starlight's implementation of SWPBS under study, (2011-12, 2012-13, 2013-14), what is the difference in the state standardized mathematics test scores and the state standardized English/Language Arts (ELA) test scores for sixth grade boys and how does this compare across demographic groups?
3. How have Starlight's state standardized test scores changed for sixth grade boys during 3 years of SWPBS implementation, (2011-12, 2012-13, 2013-14), when controlling for student demographics, ODRs, and suspensions?
4. How have Starlight's suspension rates changed for sixth grade boys during 3 years of SWPBS implementation, (2011-12, 2012-13, 2013-14), when controlling for student demographics, including ethnicity, special education, and socioeconomic status (SES)?
5. What are the differences in Starlight's ODRs and suspensions for sixth grade boys above and below the state standardized ELA and mathematics cut score during the three years under study, (2011-12, 2012-13, 2013-14)?

Comment [JE2]: Over what period of time?

Comment [JE3]: Compared to what period? Last three years… what period is used for a comparison in all research questions?

Research Design

A quantitative research design, using archival data, was employed for this study. This study used an ex post facto design to examine relationships among variables in three consecutive

cohorts of sixth grade boys. The research design involved an examination of office discipline referrals (ODRs), suspensions, and academic data from the state standardized test scores from Starlight Middle School sixth grade male students. The data collected consisted of ODRs, suspensions, test data, and demographic statistics. Descriptive and inferential statistics were used. The dependent variables pertaining to student discipline included ODRs and suspensions. Additional dependent variables pertaining to student achievement includes state standardized test mathematics and ELA scores. Driven by the problem of boys' barriers to success in school and the availability of archival data, I searched for differences of statistical significance during the three years under study (Ellis & Levy, 2009).

Context

Starlight Middle school is the only fifth and sixth grade building in a Midwestern urban school district of over 7,000 students. Seven elementary school buildings feed into Starlight. After attending Starlight, students attend a single junior-high school (7-8) and high school (9-12). The district also has a small alternative high school. The urban school district is located in a community among many manufacturing companies and a state university with 40,000 students. Starlight's total enrollment during the years of this study was approximately 1,000 students. The ethnic composition of the enrollment over these three years varied little: 50% White, 25% Hispanic, 16% Black, 8% Multiracial, and 1% other.

During the study the free/reduced lunch participation included approximately 74% free meals and reduced price meals. Socioeconomic status (SES) is delineated by two categories: Free/Reduced Lunch Status and Paid Lunch Status. These categories are determined by the United States Department of Agriculture (USDA) National School Lunch Program. Students whose family income is at or below 130% of poverty are eligible for free meals. Students whose

family income is between 130% and 185% of poverty are eligible for reduced-price lunches. Both students who receive free meals and those who received reduced price meals are considered low SES. The paid category represents students whose family income is above 185% of poverty and therefore must pay the full price set by the local school system. The categories of Free/Reduced Lunch Status are combined into one statistical unit and Paid Lunch Status is the other statistical unit used to determine the number of students in poverty in each school system. These are recorded in the student data management system and are reported to the state department of education (U.S. Department of Agriculture, 2017).

Starlight's special education population during these three years was approximately 15%. The overall combined ELA and mathematics state standardized test percentages for Starlight over the three years under study were 69%, 72%, and 71% respectively, which was slightly lower than the state averages of 71.5%, 73%, and 74% for the same years. During the same three years, boys were far more likely to receive disciplinary action at Starlight. Boys received 74.3%, 74.6%, and 77.7% of ODRs, and they received 81.6%, 72%, and 75.2% of suspensions for each of the three years of the study. Appendix B provides a detailed analysis of boys and girls disciplinary referrals and suspensions.

Starlight provides a meaningful opportunity to examine the relationship of SWPBS as the demographics of this middle school are representative of those of the nation. Table 1 compares the K-12 school, district, state, and national student demographics to those of Starlight during the 2013-2014 school year, the last year under study.

Table 1

2013-14 Student Demographics Percentage: Nation, Sate, District, and School

Demographic	National	State	District	Starlight
White	50.3	70.9	54.1	54.3
Hispanic	24.7	10.1	24.8	29.2
Black	15.5	12.3	14.4	11.1
Multiracial	3.1	4.5	5.7	4.7
SPED	14.0	14.8	16.5	16.7
ELL	9.9	5.3	14.6	15.4
Free/Reduced Lunch	50.0	49.2	70.2	74.4

Note. National statistics adapted from "2013-2014 Civil rights data collection: A first look," by U.S. Department of Education, Office of Civil Rights, 2016. Retrieved from http://www2.ed.gov/about/offices/list/ocr/docs/2013-14-first-look.pdf. State, corporation, and Starlight statistics adapted "DOE Compass," by Indiana Department of Education, 2016. Retrieved from https://compass.doe.in.gov/dashboard/overview.aspx

Sample

The target population for this study was three cohorts of sixth grade boys who attended Starlight Middle School during three consecutive school years: 2011-2012, 2012-2013, 2013-2014. Not all sixth grade boys in each class were included in the study. Sixth grade male students were included in the study only if their student identification number indicated that they had participated in both the ELA and mathematics portions of the state standardized test. If a student's identification number was not reported within the dependent variables of participation in ELA and mathematics state standardized tests, as well as the independent variables of the implementation of SWPBS (race, special education status, and SES), they were excluded. The difference between the number of sixth grade male students and the number included in the study is shown in Table 2.

Table 2

Sixth Grade Boys Enrolled and Sixth Grade Boys Meeting Criteria of Study

Sixth Grade Boys	Year 1 (2011-2012)	Year 2 (2012-2013)	Year 3 (2013-2014)
Enrolled	256	237	247
Included in study	240	210	243
Percentage enrolled in study	93.7%	88.6%	98.3%

Sampling Procedures

The population involved in this study is the sixth grade boys enrolled in Starlight Middle School during the three years of implementation of SWPBS. It included the sixth grade boys whose identification number was reported in Starlight's PowerSchool student data management system and who participated in both the mathematics and English/Language Arts portions of the state standardized test. The criteria for inclusion in the study represented a large proportion of sixth grade boys enrolled each year. The sample includes nearly 93.7% of sixth grade boys enrolled in year one, 88.6% of sixth grade boys enrolled in year two, and 98.3% of sixth grade boys enrolled in year three.

The sampling method was chosen based on knowledge about discipline challenges for boys, discipline data collection systems, standardized tests, and school discipline practices at Starlight Middle School. Sixth grade was the grade level chosen for the study because research suggests that sixth graders consistently exhibiting unacceptable behavior were far less likely to graduate from high school, particularly if they attended high poverty schools during sixth grade (Balfanz, 2009; Irvin et al., 2004). The population for study was boys in sixth grade for each of three consecutive school years.

Research has shown that disciplinary referrals and academic achievement in sixth grade have a significant impact on students' later educational and economic outcomes and that boys are more likely to experience school discipline (Balfanz, 2009; Irvin et al., 2004; Owens, 2016). The

three large, diverse cohorts of sixth grade boys provided an opportunity to learn about differences in boys' disciplinary and academic outcomes and the relationship of school disciplinary practices, race, SES, and special education during three consecutive years of implementation of SWPBS.

The core principles of SWPBS center on proactive practices and policies that prevent negative behaviors, continuously reinforce positive behaviors, rely on data collection and response, and provide school-wide support for all students (Carr et al., 2002; Horner et al., 2005; Sugai et al., 2000). As SWPBS is implemented, the focus of decision-making by educators in a school shifts from punitive practices to supportive and corrective practices (Medley, Little, & Akin-Little, 2008). Table 3 shows five essential strategies for effective and fully implementing SWPBS. It is important to note that SWPBS is not a formula or curriculum, but a framework of strategies and principles.

Table 3

Guiding School-Wide Positive Behavior Support Strategies

SWPBS Strategy	SWPBS Strategy Definition
Strategy 1: Define behavioral expectations	High priority social skills and behavioral expectations are defined based on school needs.
Strategy 2: Teach behavioral expectations	School-wide instruction on behavioral expectations is provided to all staff and students.
Strategy 3: Reinforcing expected behaviors	Expectations are announced, displayed, and rewarded
Strategy 4: Data based decision making	Behavioral data is reviewed, discussed, and shared
Strategy 5: School-wide screening	Students who need more intensive interventions are identified through school-wide screening

Note. Adapted from Positive Behavioral Interventions & Supports (PBIS). (2016). Tier 1 supports. Retrieved from http://www.pbis.org/school/tier1supports

During year one of this study, traditional school disciplinary practices were in use at Starlight. Traditional school discipline tends to be focused on responding to negative or unwanted behaviors (Sugai & Horner, 2002; Utley, Kozleski, Smith, & Draper, 2002). During year two, SWPBS had been partially implemented, and during year three SWPBS had been fully implemented. Starlight implemented SWPBS through professional development for every staff member.

During year one, analysis of student discipline data began a process of reflection and dialogue after which SWPBS was identified for implementation to address Starlight's excessive use of discipline. At the start of year two, training for teachers began during orientation on the first teacher day when the overarching school-wide philosophy and goals were shared. SWPBS focused training continued throughout the year during Professional Learning Community (PLC) weekly meetings and Teaching and Learning Collaborative (TLC) monthly meetings. For support staff, including para-professionals, administrative assistants, cafeteria and custodial staff, training was provided at the beginning of the year and reinforced at quarterly meetings. With the end of year two, all staff were trained and prepared for full, school-wide, implementation of SWPBS starting in year three.

Research on SWPBS implementation fidelity shows schools that had full training and on-going support made gains in key practices in successive years of implementation which in turn was associated with overall lower rates of school disciplinary referrals (Losen, 2015).
Table 4 shows changes in discipline practices for the three years of the study. SWPBS strategies are displayed in boldface to show increase in implementation by the third year of the study.

Table 4

Discipline Practices at Starlight Middle School

Study Year 1 **Pre-SWPBS (2011-12)**	**Study Year 2** **Partial-SWPBS (2012-2013)**	**Study Year 3** **Full-SWPBS (2013-14)**
Student handbook & board policy serve as discipline guide	Student handbook & board policy serve as discipline guide	Student handbook & board policy serve as discipline guide
Negative behaviors recorded in student handbook, 8 write ups resulting in automatic ODRs, 12 resulting in automatic detention, and 16 automatic ISS	**Eliminated write-ups in student handbook**	**No write-ups in student handbook**
	Formed PBIS Data Team Monthly meetings established to review and respond to disaggregated discipline data	**Continued PBIS Data Team – initiated behavioral screenings**
No acknowledgement of positive student behaviors: staff informed of students suspended for remainder of year	**Began daily reinforcement of positive behaviors on announcements: BE SAFE; RESPONSIBLE; RESPECTFUL; POSITIVE**	**Continued daily reinforcement of positive behaviors on announcements: BE SAFE; RESPONSIBLE; RESPECTFUL; HELPFUL**
	Whole Brain Teaching (Biffle, 2013)– school-wide behavior strategies including call/response – getting student attention	**Expanded Whole Brain Teaching strategies through school-wide PD for all staff**
	School-wide books read and discussed: How Full is Your Bucket (Rath & Clifton, 2007) for every staff member; Growing up with a Bucket Full of Happiness (McCloud, 2010) for sixth graders.	**School-wide displays of Bucket Filling and integration of Bucket Filling lessons into a related arts class.**
For ODRs – students sent from classroom to office.	**For ODRs- teachers mostly handled in classroom, administrators came to class to meet with students briefly and return to class quickly.**	**For ODRs- teachers mostly handled in classroom, administrators came to class to meet with students briefly and return to class quickly.**

No parent call practice except for suspensions. Negative calls only to parents	**Expectation to call parents 3X before making an ODR. Calls to parents for positive behavior**	**Expectation to call parents 3X before making an ODR. Calls to parents for positive behavior**
Parent contact from office	Parent contact from office or email	**Principal gave every parent cell phone number and texted/called parents for positive behaviors and directly responded to parent concerns**
No consistency between administrators on handling discipline	**Administrators collaborated and met regularly to ensure consistency of disciplinary responses**	**Administrators collaborated and met regularly to ensure consistency of disciplinary responses**
Disruptive students sent to hallway or office, unsupervised and unescorted.	**Students remain in classroom for teacher response or administrators go to classroom**	**Instituted Think Sheet, student remains in classroom, but given time to reflect and write about behavior- without ODR**
Token Economy – not school-wide	Discussed becoming intentional about giving out Broncho Bucks to reinforce positive behavior	**Gave more options for students to use Broncho Bucks, instituted Wheel of Wonder; weekly incentives, classroom incentives**
No acknowledgement of positive student behavior	Instituted 200 Club – 10 teachers every day selected to give students tickets for leaders of positive behavior in four domains: Safe, Responsible, Respectful, and Positive. Student leaders chosen for drawings for special acknowledgement. Daily acknowledgement on announcements of positive behavior role models.	**Expanded 200 Club – Changed wording to Safe, Responsible, Respectful, and Helpful – reflecting students as change agents. Rewarded all students in 200 club with convocation every 9 weeks. Daily acknowledgement on announcements of positive behavior role models.**
No SWPBS PD on classroom management and dealing with disruptive students	**SWPBS PD throughout year on classroom management; first teacher days – 2 hours on plan to implement SWPBS**	**SWPBS PD throughout year; first teacher day – refresher course/changes; New teacher – 2-hour session**
Partial expectations on	Put up posters throughout	**Expanded signage school-**

walking in hallway, etc.	school on how to BE SAFE, etc. in hallways, café, classroom, restroom, etc.	**wide beyond behavioral expectations to positive reinforcement such as "Shine like the star you are." Signage included whole matrix of how students can be Safe, responsible, respectful, and helpful.**
Starlight was an upper middle school – (maybe don't bring this up)	**Created an environment that most appropriate for lower MS – teachers walked students to class; Homeroom**	**Continued this by lengthening homeroom and recess**
Spoke to incoming fourth graders at end of this year about changes that might happen	**Spoke to families about the planned shift to full SWPBS at orientations and PTO meetings; spoke to fourth graders preparing transition to LSIS.**	**Expanded information for parents about full implementation of SWPBS at orientation and PTOs**
No problem solving meetings	**Weekly problem solving meetings implemented with a specific SWPBS focused agenda set for meetings**	**Problem Solving meetings expanded to 4 x weekly, agenda intensified focus on prevention via SWPBS Counselors initiated protocols for RTI Tiers 2&3 to meet more intensive needs for student based on SWPBS model**
Traditional consequences included: ODRs, detentions, ISS, OSS, parent conference, expulsion, alternative placement	**Expanded consequences to minimize disruption of and removal from instructional environment including– Saturday School; lunch/before & after school detention; apology letter and other restorative justice measures**	**Expanded consequences – School Court; consequences determined through expanded collaboration between parent, teacher, student, administrator – ended isolated acts, promoted uniform, whole school approaches.**
Expectations not defined	**Expectations defined – 48 Rise & Shine expectations taught using SWPBS based (Kevin Dill) lesson plans.**	**Expectations expanded to 50 to include digital citizenship lessons due to launch of iPad 1:1 initiative.**

Note. SWPBS strategies are in boldface.

Measures

Each of the measures used for the quantitative study, including office discipline referrals (ODRs), suspension data, the state standardized ELA test scores, and the state standardized mathematics test scores are described in the following sections. These measurements were used to quantify the behavior outcomes an academic achievement in sixth grade boys during the three years of this study

ODRs. For the three years under study, both teachers and administrators reported negative student behavior in PowerSchool, an electronic student data management system in use by Starlight Middle School. In each behavior report, teachers specified in the subject line one of four categories: intervention, information, communication, or discipline. If the subject line was discipline, the incident was automatically forwarded to administration via email and reported in the student's log entry. Only those behavior reports that were coded as discipline were included in ODR data for this study. During the first year of the study, ODR data were not analyzed or shared. During the second and third years of the study, ODR data were collected and analyzed monthly and shared with staff quarterly. Research question one addressed the difference in ODRs over the three years of the study.

Suspensions. Administrators make the decision to use in-school or out-of-school suspension as a disciplinary consequence at Starlight Middle School. Administrators record suspensions in PowerSchool. Administrators email student suspension information to an administrative assistant who records this information for the end of year state education report. In the first year, suspension data were not collected or analyzed. In the second and third years, suspension data was collected and analyzed monthly and shared with staff quarterly.

Statewide Standardized Test. During the three years under study, sixth graders participated in the statewide standardized testing program in the subject areas of ELA, Mathematics, Science, and Social Studies. The statewide standardized test is a test product of CTB-McGraw Hill, with whom the state department of education contracted to administer and evaluate statewide testing. The state standardized test was created in 1987 and was changed to a criterion-referenced test in 1995. For this study, the instruments used are scores for the state standardized test in ELA and mathematics.

The state standardized test is a criterion-referenced test using test items that align with the state's academic standards. The test is not norm-referenced. Federal legislation, known as No Child Left Behind required student achievement to be reported in three or more performance levels (NCLB, 2001). One level indicating that students have reached proficiency is a requirement of NCLB. It is left to each state to determine the number of performance levels in their standardized testing programs. The state standardized test reports three performance levels, Pass+, Pass, and Did Not Pass (DNP). Pass is the equivalent of proficient in the state (CTB/McGraw-Hill, 2014).

During the three years of this study, sixth graders participated in ELA, mathematics, science, and social studies state standardized test. Since they determine school performance in the state accountability system, only the ELA and mathematics state standardized test scores were used in this study to measure student achievement.

Data Collection

Prior to data collection, a written request was submitted to the Starlight School District. Permission was granted to collect archival data necessary to conduct the research, while maintaining student anonymity, (Appendix B). Student discipline, demographics, and ELA and

mathematics state standardized test data were retrieved from the Starlight Middle School PowerSchool database.

Data Analysis

Quantitative data for this study were collected from the PowerSchool student data management system, and SPSS statistical software was used for data analysis. Because descriptive statistics can be useful in helping to convey the whole story, both descriptive and inferential statistics were used (Moses & Knutsen, 2007). To generate a standard for comparisons between years, totals for each outcome measure were multiplied by the percentage of change in enrollment for sixth grade boys between each respective year.

The first research question examined the difference in ODRs and suspension for sixth grade boys during the three years of SWPBS implementation. To examine the average number of ODRs and suspensions sixth grade male students received, two sets of analyses were conducted. First descriptive statistics were generated for both ODRs and suspensions for each year of the study. Second, a Poisson regression was conducted to determine if the differences in the number of ODRs and suspensions for each year of the study were statistically significant. This method of analysis was a generalized linear model and was appropriate because the data was historical count data and discrete. The statistical tools used as part of the Poisson regression were descriptive, Omnibus Test, and Wald Chi-Square Test (Beck & Tolnay, 1995).

The second part of question one describes ODR and suspension data through student demographics, which included ethnicity, special education, and socioeconomic status (SES). Ethnicity was divided into four categories: White, Black, Hispanic, and other. Special education was split into two categories: students with a disability and general education students. SES was separated in two categories: paid lunch and free/reduced lunch.

The second research question examined differences in student achievement over the three years under study of SWPBS implementation using the state standardized mathematics and English/Language (ELA) scores for sixth grade boys**.** A series of one-way analysis of variances (ANOVA) were conducted to determine if the differences in ELA and mathematics test scores for the three years under study were statistically significant. One-way ANOVA was used because the technique can examine at all three cohorts simultaneously, which decreases the chance of a Type I error (Ary, Jacobs, Razavieh, & Sorensen, 2009). The Levene's Test was used to determine if the assumption of homogeneity was met. A univariate ANOVA was also conducted to ensure accuracy of statistical significance when comparing each cohort. The second part of question two examined ELA and mathematics test scores within student demographic groups through descriptive data.

The third research question examined Starlight state standardized test scores in relation to student demographics over the three-year period. A series of one-way ANOVAs were used to check for differences in test scores when comparing student demographics, which were ethnicity, special education, and SES. This question also examined differences in test scores when students had zero ODRs or suspensions compared to students who had one or more ODR or suspension. Descriptive statistics were used to show ELA and mathematics mean scores of each ODR and suspension category. A series of one-way ANOVAs were also used to test for statistical significance. Statistical tools used as part of one-way ANOVA were descriptive, Levene Test, and Tukey Post Hoc test.

Poisson regression was also used in the fourth question to predict the number of suspensions between each independent variable for each year of implementation. The independent variables were ethnicity, SES, and special education. This method of analysis was

used because the dependent variable, suspension, was historical count data and discrete. The statistical tools used as part of the Poisson regression were descriptive, Omnibus Test, and Wald Chi-Square Test (Beck & Tolnay, 1995).

To further examine the relationship between variables in the fifth and final question, a series of independent samples t-tests were conducted, one for the mathematics state standardized test scores and one for the ELA state standardized test scores. The purpose was to check for statistical differences in mean ODRs and suspensions when looking at sixth grade boys who fall above and below the state standardized test cut scores for each year under study. The Levene's test was conducted for each content area of the state standardized test and for each academic year to check if equal variances were assumed.

Limitations of the Study

The following are potential limitations of the study:

1. Teachers may not have consistently identified the subject line as discipline on PowerSchool referrals due to varying levels of tolerance for behaviors.
2. Teacher bias or favoritism of certain students may have influenced ODR referrals.
3. Administrators' perceptions and decision making could be subjective.
4. Teachers administer the state standardized tests and this could cause discrepancies in test administration.
5. Standardized tests are pass/fail and do not provide detailed analysis of individual student performance.
6. Administrative assistants are responsible for entering suspension data, which could cause inaccuracies.

7. Teachers received the same training on SWPBS in years 2 and 3, but teachers could interpret and implement the training subjectively.
8. Each year of the study there was teacher and administrator turnover.
9. I was involved in ISS and OSS assignments during the three years of the study.
10. SWPBS provides a framework for implementation with fidelity, not a specific formula or curriculum.
11. Culturally Responsive School-wide Positive Behavior Supports (CR-SWPBS) recognizes that both academic and behavioral learning are mediated by culture. SWPBS, implemented in Starlight, did not specifically incorporate training components of CR-SWPBS.

Summary

The purpose of this chapter is to provide details about the quantitative design of this study, which examined differences in the dependent variables of ODRs, suspensions, and academic achievement for sixth grade boys over three years. The independent variables were ethnicity, SES, and special education. Chapter four provides the results of analyses of the archival data used in this study.

CHAPTER FOUR: RESULTS

This research examined differences in disciplinary and academic outcomes for sixth grade boys during the implementation of School-wide Positive Behavior Supports (SWPBS) in an urban middle school. An ex post facto study used archival data pertinent to specific disciplinary and academic outcomes during the three years under study. The purpose statement and research questions are reviewed at the beginning of this chapter. Then the demographic data for each of the three cohorts of sixth grade boys included in the study will be provided. The chapter will then present an analysis of the results of each of the five research questions using both descriptive and inferential statistics. The information gathered from this research aspires to provide insights on how SWPBS may impact boys in schools and also to ignite further questions and discussion.

Purpose Statement

The purpose of this study was to examine differences between academic and behavioral outcomes for three cohorts of sixth grade boys enrolled at Starlight Middle School over a period of three years. A comparison was made between pre-, partial, and full intervention data during three years of implementation of SWPBS at this middle school. SWPBS was implemented as a universal, or school-wide, strategy representing the first of three tiers in a Response to Intervention (RTI) framework. The independent variables were ethnicity, special education, and socioeconomic status (SES). The dependent variables were office disciplinary referrals (ODRs), suspensions, and state standardized test scores.

Research Questions

The research questions that guided this study was:

1. During the three years of Starlight's implementation of School-wide Positive Behavior Supports (SWPBS) under study, (2011-12, 2012-13, 2013-14), what is the difference in office discipline referrals (ODRs) and suspensions for sixth grade boys and how does this compare across demographic groups?
2. During the three years of Starlight's implementation of SWPBS under study, (2011-12, 2012-13, 2013-14), what is the difference in the state standardized mathematics test scores and the state standardized English/Language Arts (ELA) test scores for sixth grade boys and how does this compare across demographic groups?
3. How have Starlight's state standardized test scores changed for sixth grade boys during 3 years of SWPBS implementation, (2011-12, 2012-13, 2013-14), when controlling for student demographics, ODRs, and suspensions?
4. How have Starlight's suspension rates changed for sixth grade boys during 3 years of SWPBS implementation, (2011-12, 2012-13, 2013-14), when controlling for student demographics, including ethnicity, special education, and socioeconomic status (SES)?
5. What are the differences in Starlight's ODRs and suspensions for sixth grade boys above and below the state standardized ELA and mathematics cut score during the three years under study, (2011-12, 2012-13, 2013-14)?

Comment [JE4]: Over what period of time?

Comment [JE5]: Compared to what period? Last three years… what period is used for a comparison in all research questions?

Participant Demographics

In total, during the three years of the study, data for 740 individual sixth grade boys were included. Demographic data for each of the three separate cohorts of boys are presented in Table 5. During each year under study White males comprised a majority ranging from 51.9% to 57.5%. Hispanics were the second largest ethnicity ranging from 22.7% to 27%. Black male students represented the third largest ethnicity ranging from 11.7% to 15.6%. Each year's

percentage represented that ethnicity's portion of the population of their respective cohorts. The smallest ethnic group is labeled "Other" and included male students identified as multi-racial, American Indian, or Asian. Male students identified as "Other" with regard to ethnicity were not included in further disaggregation of data. The table shows that nearly 1 in 5 male students in each cohort have a disability. It also indicates that approximately three-fourths of the male students have a free or reduced SES status.

Table 5

Sixth Grade Male Student Demographics

Demographic Variables		N	Percentage
	2011-2012 School Year		
Ethnicity	White	137	53.5
	Black	40	15.6
	Hispanic	58	22.7
	Other	21	8.2
Socio-Economic	Free-Reduced	188	73.4
	Paid	68	26.6
Special Education	No	206	80.5
	Yes	50	19.5
	2012-2013 School Year		
Ethnicity	White	123	51.9
	Black	29	12.2
	Hispanic	64	27.0
	Other	21	8.9
Socio-Economic	Free-Reduced	169	70.0
	Paid	68	30.0
Special Education	No	190	80.2
	Yes	47	19.8
	2013-2014 School Year		
Ethnicity	White	142	57.5
	Black	29	11.7
	Hispanic	64	25.9
	Other	12	4.9
Socio-Economic	Free-Reduced	183	74.1
	Paid	64	25.9
Special Education	No	210	85.0
	Yes	37	15.0

Table 6 illustrates the SES of male students included in the study, divided by ethnicity, within each of the cohorts and as a total population. A majority of sixth grade male students during the three consecutive school years received free or reduced lunch. This included approximately 60% of White male students, nearly 88% of Hispanic male students, and just under 93% of Black male students.

Table 6

Ethnicity and Socio-economic Status for Sixth Grade Boys

	Socio-Economic Status			
Ethnicity	Free/Reduce	Percentage	Paid	Percentage
		2011-2012 School Year		
White	81	59.1	56	40.9
Black	37	92.5	3	7.5
Hispanic	53	91.4	5	8.6
Other	17	81.0	4	9.0
Total	188	73.4	68	26.6
		2012-2013 School Year		
White	75	61.0	48	39.0
Black	27	93.1	2	6.9
Hispanic	54	84.4	10	15.6
Other	10	55.5	8	44.5
Total	169	71.3	68	28.7
		2013-2014 School Year		
White	93	65.5	49	34.5
Black	27	93.1	2	6.9
Hispanic	56	87.5	8	12.5
Other	7	58.3	5	41.7
Total	183	74.1	64	25.9
		Total		
White	249	61.9	153	38.1
Black	91	92.9	7	7.1
Hispanic	163	87.6	23	12.4
Other	37	68.5	17	31.5
Total	540	73.0	200	27.0

Data Analysis

The data were analyzed for each research question to determine the differences in specific academic or disciplinary outcomes for the cohorts of male students in each of three consecutive school years.

RQ 1a. Differences in ODRs and Suspensions

Descriptive statistics. Table 7 quantifies the number of boys receiving ODRs or suspensions in each year. It shows the percentage of ODRs declining each year, however nearly 45% of boys were still referred to the office in 2013-14, the year of full implementation of SWPBS. The percentage of boys receiving suspensions was nearly cut in half over three years, with slightly over 18% of students suspended in 2013-14.

Table 7

Percentage of Boys Receiving ODRs or Suspensions

Year of study	Boys Overall	Receiving ODRs	Percentage of Boys	Receiving Suspensions	Percentage of Boys
2011-12	256	180	70.3	86	33.6
2012-13	237	144	60.8	74	31.2
2013-14	247	111	44.9	45	18.2
Total	740	435	58.8	205	27.8

Table 8 shows the number of referrals individual boys received in a single school year, grouped by multiples of five ODRs, with the final group expressed as 21 or more ODRs. The number of male students receiving the lowest number of ODRs, between 1 and 5, remained constant over three years. The number of male students receiving referrals in each of the other categories, ranging from 6 to more than 21 referrals, declined. The number of male students receiving the most referrals, 21 or more, showed the greatest decline, from 29 in the first year to 3 in the final year of the study.

Table 8

Number of ODRs per Male Student

Year	1-5	6-10	11-15	16-20	21+	Total
2011-12	89	35	18	9	29	180
2012-13	80	28	15	6	15	144
2013-14	79	17	8	4	3	111
Total	248	80	41	19	47	435

The number of suspensions received by individual boys in a single school year are illustrated in Table 9. As with ODRs, the number of male students receiving the fewest suspensions remained virtually unchanged over three years. The number of male students receiving 2-8 suspensions declined each year, with the biggest drop occurring between the second and third years of implementation of SWPBS. Between 2011-12 and 2013-14 suspensions decreased 63%, from 86 to 45. It is noted that in the second year, the number of male students receiving 7-8 suspensions spiked to 8 and then, in year three, dropped to a single student, as was the case in the first year.

Table 9

Number of Suspensions per Male Student

Year	1	2	3-4	5-6	7-8	Total
2011-12	20	23	23	19	1	86
2012-13	23	10	13	20	8	74
2013-14	23	12	5	4	1	45
Total	66	45	41	43	10	205

Inferential statistics. To test for statistical differences, a Poisson regression was used to predict the number of ODRs and suspensions during years 2 and 3 of the study. This analysis was appropriate because both dependent variables, ODRs and suspensions, are count data and discrete. The independent variable was the degree of SWPBS implementation. As mentioned in Chapter 3, Starlight Middle School implemented specific practices within the SWPBS

framework each year. This section will explain how Poisson regression was used to separately analyze for statistical significance of ODRs and suspensions in years 2 and 3 of study.

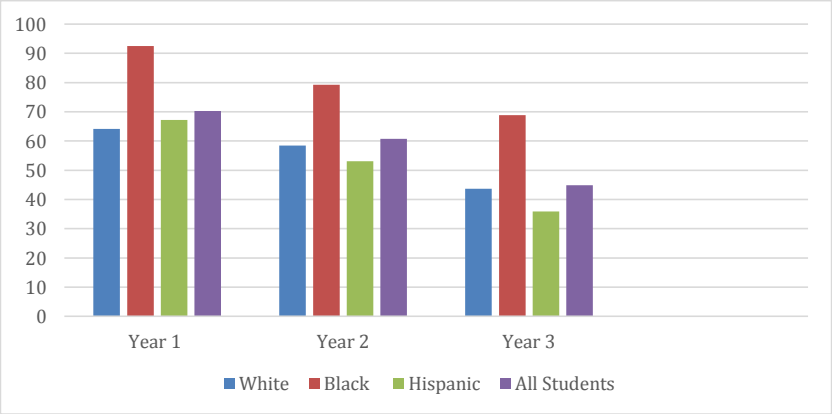
The regression was first run with ODRs as the dependent variable. The categorical variable information of each academic year was well balanced. The Omnibus Test showed that differences in ODRs over the three academic years were statistically significant ($p < .001$). Using Wald Chi-Square, the parameter estimates confirmed that the differences in ODRs each year were statistically significant when compared to 2011-12 academic year. The 2012-13 academic year had 0.72 (95% CI, 0.67 to 0.77) fewer ODRs or a decrease of 28%, a statistically significant result, $p < .001$. The 2013-14 academic year had 0.32 (95% CI, 0.29 to 0.35) fewer ODRs or a decrease of 68%, a statistically significant result, $p < .001$. For both years 2 and 3, ODRs showed a statistically significant decrease.

The Poisson regression was run with suspensions as the dependent variable. Again, the categorical variable information of each academic year was well balanced. The Omnibus Test showed that differences in suspensions over the three academic years were statistically significant ($p < .001$). Using Wald Chi-Square, the parameter estimates confirmed that only one year was statistically significant when compared to the 2011-12 academic year. The 2012-13 academic year had 1.09 (95% CI, 0.91 to 1.30) more suspensions or an increase of 9%, a statistically insignificant result, $p = .339$. The 2013-14 academic year had 0.39 (95% CI, 0.31 to 0.49) fewer suspensions or a decrease of 61%, a statistically significant result, $p < .001$. For year 2, suspensions indicated no statistical significance. For year 3, suspensions revealed a statistically significant decrease when compared to year 1 (see Appendix D for complete analysis).

Therefore, while ODRs decreased significantly during both the partial and full implementation years, rates of suspension did not significantly decrease until full implementation of SWPBS in the third year. The second part of question one examined rates of ODRs and suspensions within demographic groups using descriptive data.

RQ 1b. Comparing ODRs and Suspension across Demographic Groups

Figure 4. *Percentage of Male Students Receiving ODRs by Ethnicity*



While the overall percentage of boys receiving ODRs decreased during years two and three, Figure 4 shows that it did not decrease for all ethnicities. The percentage of Black male students receiving at least one ODR decreased from about 92% in year 1 to about 79% in year 2. In Year 3, rates of ODRs for Black male sixth graders decreased to 69%, which was still higher than rates of ODRs for White or Hispanic male sixth graders in Year 1.

In year three, when SWPBS was fully implemented, approximately 44% of White male students received at least one ODR, nearly 36% of Hispanic male students received at least one ODR, but almost 82% of Black male students received at least one ODR. Appendix E provides complete demographic data pertinent to ODRs and suspensions. The data showed that Black male students were nearly twice as likely to receive ODRs than White or Hispanic male students.

Figure 5 shows that the difference in the percentage of boys who were low SES receiving ODRs fell more dramatically in year 3 when SWPBS was fully implemented. By year 3 percentages of boys receiving ODRs, whether they were free/reduced or paid lunch status, were less than 2% apart.

Figure 5. *Percentage of Male Students Receiving ODRs by SES*

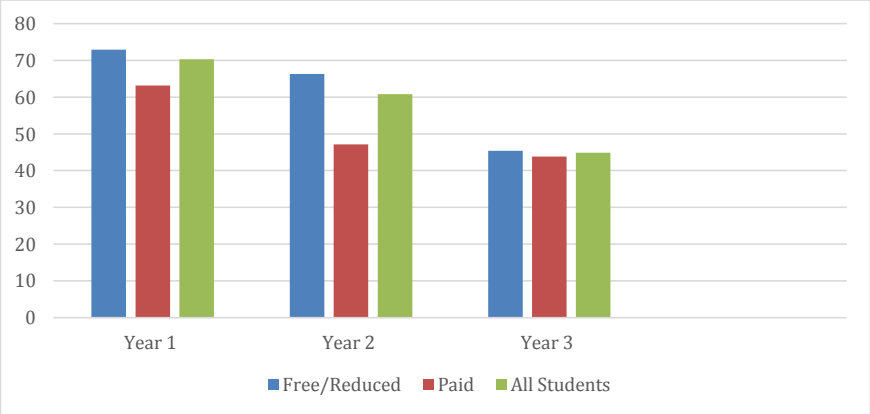
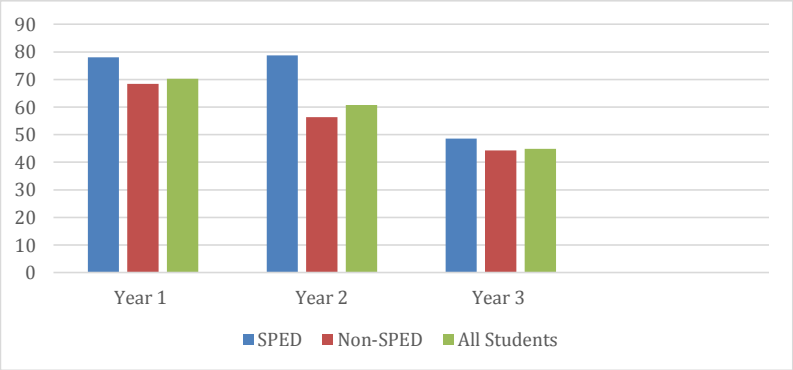


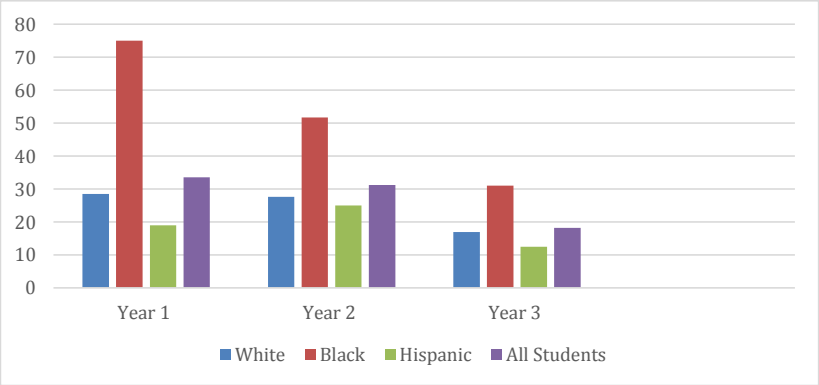
Figure 6 examines the percentages of boys who receive special education and those in general education who received ODRs in each cohort. There was a slight increase in the percentage of boys receiving special education who were referred for office discipline in year 2, but a significant decrease in that percentage in year 3. In years 1 and 2, higher percentages of boys receiving special education were referred than boys in general education, but this leveled off in year 3, with both groups having less than 50% of male students referred. Even as ODRs decreased, it is noted again that still nearly 45% of all male students were referred for discipline.

Figure 6. *Percentage of Male Students Receiving ODRs by Special Education*



The percentages of male student suspensions by ethnicity are shown in Figure 7. The data showed that nearly 75% of Black male students were suspended in year 1 compared to under 29% of White male students. This decreased over the next two years ending with 31% of Black male students suspended in year 3 compared to just under 17% of White male students. Hispanic male student suspension rates did not follow the same trajectory as Black or White male students. The percentage of Hispanic male students suspended between years 1 and 2 increased from 19% to 25%, but was cut in half in year 3 to 12.5%. Full demographic data pertinent to suspensions is available in Appendix D. During years 1 and 2, over 50% of Black, White, and Hispanic male students who received suspensions, were suspended 3 or more times. During year 3, this rate declined to include 44% of Black male students, 25% of White male students, and 0% of Hispanic male students who were suspended 3 or more times.

Figure 7. *Percentage of Male Students Suspended by Ethnicity*



As shown in Figure 8, the percentage of male students with free/reduced lunch status is much greater than male students who have paid lunch status and remained so during the three years of the study. The percentage of suspended males with free/reduced status actually increased slightly from year 1 to year 2. Percentages of male students in both SES categories declined between years 1 and 3. Still, boys with free/reduced lunch status remained 3 times more likely than boys with paid lunch status to be suspended following full implementation of SWPBS.

Figure 8. Percentage of Male Students Suspended by SES

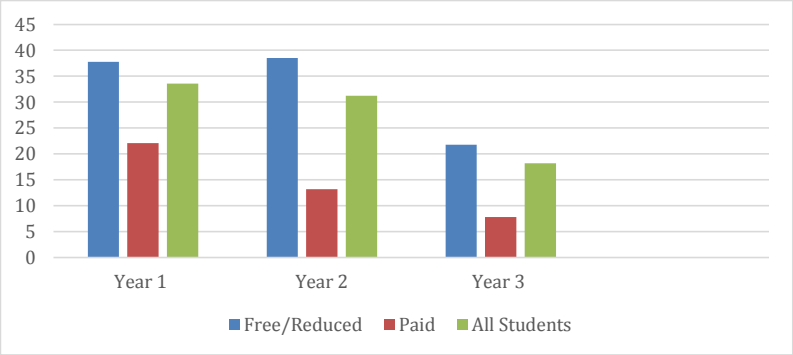
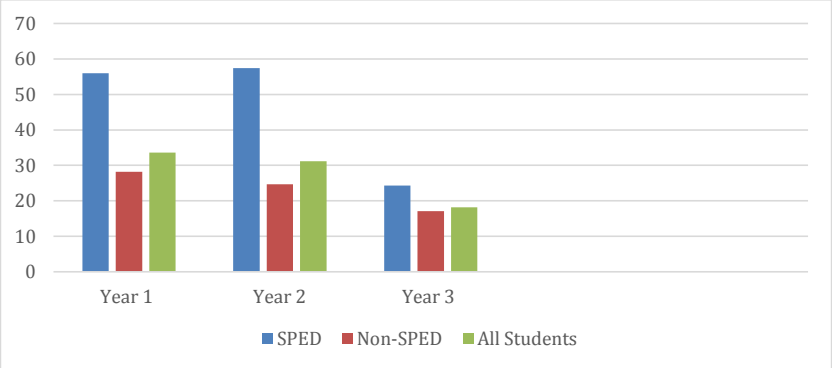


Figure 9 illustrates the percentages of male students receiving special education services and those in general education who were suspended. As was the case with boys receiving free/reduced lunch, the percentage of male students receiving special education who were suspended increased from year 1 to year 2. Indeed, in years 1 and 2, males receiving special education services were twice as likely to be suspended as their non-special education peers. This decreased significantly in year 3 and became more aligned with the percentage of male students in the general education population who were suspended.

Figure 9. Percentage of Male Students Suspended by Special Education



While overall percentages of male students receiving ODRs and suspensions declined over the three years of the study, traditionally marginalized male students, including those who were Black, low SES, or receiving special education, remained at greater risk for disciplinary action in year three. The next question examined differences in performance on state standardized test scores during the study (See Appendix E for complete demographic details).

RQ 2a. Differences in mathematics and ELA test scores

Descriptive Statistics. Over the course of the three years under study, the ELA and mathematics state standardized tests in use were published by the same test company and had the same number and types of questions. Each year, students took two portions of the test in the

spring, one part in March and the other in May. The test was scored the same way, and the cut scores for each year were identical (see Appendix L). The cut score for the sixth grade ELA assessment was 478 and the cut score for the sixth grade mathematics assessment was 487. In total, 718 out of 740 boys participated in both sessions of the test and were included in the data. More boys participated in the mathematics portion as some students who were English Language Learners were exempted from the ELA portion. As shown in Table 10, mean ELA scores rose in 2012-13, but dropped in 2013-14. The opposite occurred for mean mathematic scores, which dropped in 2012-13, but rose in 2013-14. The standard deviation was not as wide in 2013-14, which meant that boys were closer to the mean score (Appendix E provides full test score data).

Table 10

State Standardized Test Mean Scores for Sixth Grade Boys at Starlight

		N	Mean	Std. Deviation
ELA	2011-12	242	504.18	71.34
Scale	2012-13	213	511.24	72.41
Score	2013-14	240	501.37	62.18
	Total	695	505.37	68.68
Math	2011-12	245	536.33	73.05
Scale	2012-13	229	530.80	79.79
Score	2013-14	244	538.18	67.00
	Total	718	535.19	73.29

Inferential Statistics. A one-way analysis of variance (ANOVA) was used to examine the differences in state standardized mathematics and ELA scores over the three years under study. The dependent variables were state standardized mathematics and state standardized ELA scores. The independent variable was the degree of SWPBS implementation. As detailed in Chapter 3, Starlight Middle School implemented specific practices within the SWPBS framework each year. This section includes how the one-way ANOVA was analyzed and if there was any significance.

First, the assumption of homogeneity was met in the ELA scores. This is indicated by Levene's Test of Homogeneity of Variances. An alpha level of .05, p (.000) < α (.05), which indicates significance, demonstrates that the assumption of homogeneity of variance was met. An alpha level of .05 was used for all subsequent analysis to determine significance. The one-way ANOVA showed no statistically significant main effect on ELA scores or mathematics scores.

Additionally, a univariate analysis of variance was conducted to test for differences in ELA or mathematics scores. This analysis did not show statistical significance for any academic year. All academic years were compared to each other. The pairwise comparisons for both ELA and mathematics showed no statistical significant differences for any academic year. The second part of question two examines mathematics and ELA scores within and among demographic groups using descriptive data.

RQ 2b. Comparing ELA and Mathematics across Demographic Groups

Test score data was further analyzed by demographic grouping including ethnicity, SES, and special education status. Overall, male student scores increased for the ELA portion of the assessment from 2011-12 to 2012-13 and decreased from 2012-13 to 2013-14. Exceptions included Hispanic male students whose ELA scores decreased in 2012-13 and increased in 2013-14, and male students with paid lunch status, whose ELA scores increased every year. The opposite occurred with the mathematics portion of the assessment. Overall male student mathematics scores decreased from 2011-12 to 2012-13 and increased in 2012-13 to 2013-14. The exceptions for the mathematics portion were for White male students whose scores increased in 2012-13 and decreased in 2013-14, and for Black male students whose mathematics scores increased every year (See Appendix F for full results).

RQ 3a. Differences in state scores across demographic groups

A one-way analysis of variance (ANOVA) examined the differences in the dependent variables of state standardized mathematics and ELA scores and the independent variables of student demographic categories for boys over the three years under study. Two categories of ethnicity showed statistical significance with White male students ELA scores $F(2, 381) = 4.32$, $p = .014$ and Hispanic male students' mathematics scores $F(2, 179) = 4.95$, $p = .008$.

A Dunnett T3 post hoc test revealed White male student ELA scores in 2012-13 to 2013-14 were statistically significant ($p = .008$) with the mean score actually decreasing by over 25 points. A Dunnett T3 test also showed mathematics scores decreased for Hispanic male students from 2011-12 to 2012-13 school year by a mean score of over 38 points and was statistically significant ($p = .009$). Black male student scores showed no significant differences during the three years under study. This was also true for male students receiving special education services, general education, and both free/reduced lunch and paid lunch status.

RQ 3b. Difference in state test scores in relation to ODRs/Suspensions

This part of the research question considered whether the number of ODRs or suspensions were associated with statistically significant differences in ELA and mathematics scores. Both descriptive and inferential statistics explored ODRs and suspensions categorically. Categories were determined by the number and type of disciplinary consequences received per male student. ODRs were split into 0, 1-5, 6-10, 11-15, 16-20, and 21+ occurrences per male student. Suspensions were divided into 0, 1, 2, 3-4, 5-6, and 7-8 occurrences. Figure 10 shows the mean scaled score differences for ELA and mathematics scores for each ODR category. In general, there was an inverse relationship between the number of ODRs and the points earned on standardized tests. The mathematics mean score decreased as the number of ODRs increase

except for 21+ ODRs, which increased slightly, but remained 47 points lower than scores received by male students with zero ODRs. The ELA mean scores decreased as the number of ODRs increased except for 11-15 ODRs, which increased slightly, but remained 46 points lower than scores received by boys with zero ODRs.

Figure 10. Differences in ODRs

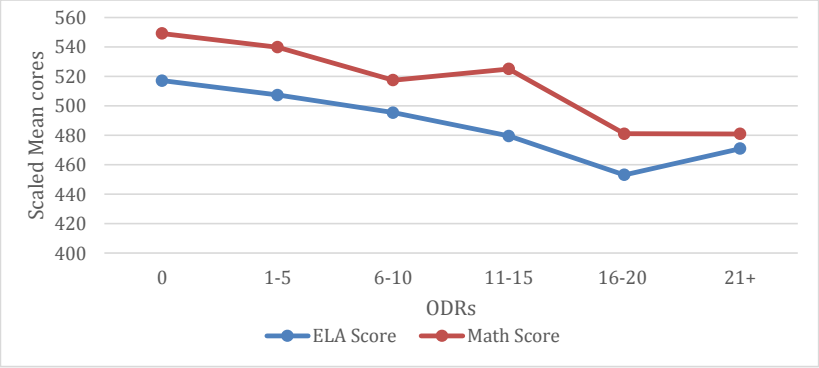
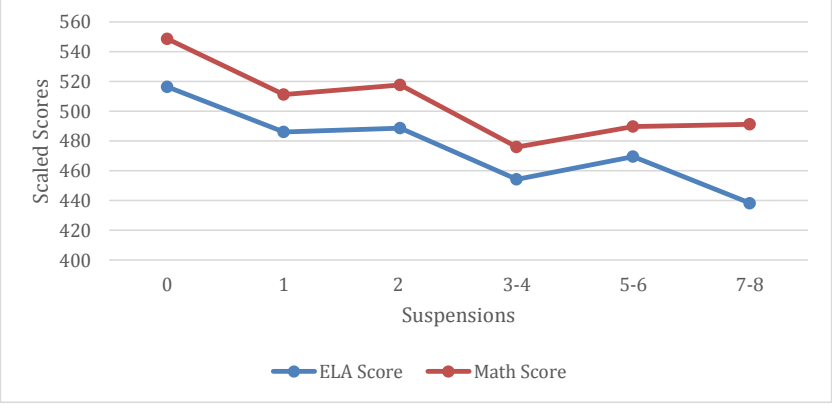


Figure 11. Differences in Suspensions



The trend for mean scaled score differences for ELA and mathematics scores for each suspension category are illustrated in Figure 11, and as with ODRs, show an inverse relationship. In general, as the number of suspensions received by male students rise, the scale score points decreased. The mean ELA score for male students with zero suspensions is a minimum of 27.68

points higher than all other suspension categories. Scores for male students with zero suspensions were 78.18 points higher than for those with 7-8 suspensions. This trend was consistent when analyzing the scale score points for boys in mathematics when comparing suspension rate categories. Mean mathematics scores for boys with zero suspensions were more than 31 points higher than any other category, and just over 57 points higher than for boys who were suspended 7-8 times (See Appendix I for complete details).

Categorical ODRs were tested for significant differences in boys' ELA and mathematics scores for all three years of the study using one-way ANOVA. The dependent variables were ELA and mathematics test scores. The independent variables were categories of ODRs per male student divided as follows: 0, 1-5, 6-10, 11-15, 16-20, and 21+. The Homogeneity of Variances were met both for both ELA and mathematics scores as they did not show any significance. The ANOVA showed significance in both the ELA and mathematics scores. When considering the interaction between zero ODRs and other ODR categories, the Tukey post hoc test revealed statistical significances for both ELA and mathematics scores. Table 11 shows ELA scores decreased significantly when male students had either 11-15, 16-20, or 21+ ODRs when compared with male students who had zero ODRs. The table also shows mathematics scores decreasing significantly when male students had 6-10, 16-20, 21+ ODRs.

Table 11

Post Hoc Summary of ODR Categories when compared to 0 ODRs

ODR	ELA Scores		Mathematics Scores	
Category	Mean Difference	Sig.	Mean Difference	Sig.
1-5	9.28	.612	9.39	.646
6-10	21.69	.135	31.70	**.006**
11-15	37.54	**.018**	24.15	.330
16-20	63.91	**.002**	68.12	**.001**
21+	46.13	**.001**	68.26	< **.001**

The Tukey test also revealed statistical significance when comparing the 1-5 ODR category to the 16-20 and 21+ ODR categories for both parts of the state standardized test. ELA scores showed a significant decrease for 16-20 ODRs (p = .016) and 21+ ODRs (p = .017). Similarly, mathematics scores indicated a significant decrease in scores for 16-20 ODRs (p = .007) and 21+ ODRs (p < .001).

Categorical suspensions were also tested for significant differences in ELA and mathematics scores using one-way ANOVA. The dependent variables were the ELA and mathematics test scores. The independent variables were the suspension categories: 0, 1, 2, 3-4, 5-6, and 7-8. The Homogeneity of Variances was met both for both ELA and mathematics scores as they did not show significance. The ANOVA showed significance in both the ELA and mathematics scores. The interaction between zero suspensions and other suspension categories was examined using the Tukey post hoc test which revealed significance for both ELA and mathematics scores. Table 12 shows that ELA scores decreased significantly when male students had either 1, 3-4, 5-6, or 7-8 suspensions when compared with male students who had zero suspensions for one of the three years under study. The table also shows mathematics scores decreased significantly when boys had 1, 2, 3-4, or 5-6 suspensions (See Appendix I for complete details).

Table 12

Post Hoc Summary of Suspension Categories when compared to 0 Suspensions

Suspension	ELA Scores		Mathematics Scores	
Category	Mean Difference	Sig.	Mean Difference	Sig.
1	30.28	**.009**	37.43	**.001**
2	27.68	.095	30.85	**.049**
3-4	62.24	**< .001**	72.70	**< .001**
5-6	46.85	**.001**	58.83	**< .001**
7-8	78.17	**.012**	57.27	.144

RQ 4. Suspension differences when controlling for student demographics

To test for statistical differences, a Poisson regression was used to predict the number of suspensions between each independent variable for each year of implementation of SWPBS. The independent variables were ethnicity, SES, special education, and degree of SWPBS implementation. This analysis was used because the dependent variable, suspensions, is count data and discrete. This section explains how Poisson regression was used to analyze suspensions to test for statistical significance, which was that suspensions would remain consistent when comparing different demographic groups of male students over the three years under study.

The Poisson regression was used for each academic year to analyze all three male student demographic groups. The Omnibus Test showed that differences in suspensions were statistically significant for all three academic years ($p < .001$). Using Wald Chi-Square, the parameter estimates confirmed that the differences in suspensions were statistically significant for all three academic years and for all student demographic groups ($p < .001$) except for male students receiving special education services ($p = 650$) in the 2013-14 school year. Therefore, Black male students showed statistically significant increases in suspensions when compared to White male students for every year under study. The opposite was true for Hispanic males. These students showed statistically significant decreases in suspensions when compared to White male students for each year under study. Low-SES male students indicated statistically significant increases in suspensions all three years when compared to High-SES male students. Male students with a disability revealed statistically significant increases in suspension when compared to general education male students during the first two years under study. There was no statistical significant increase or decrease for special education in the 2013-14 academic year.

Table 13 describes the inconsistencies of each demographic for each academic year by using exponentiated beta statistics from the parameter estimates in the Poisson regression. The exponentiated beta statistics can be interpreted by subtracting the beta number by one to garner a percentage. For example, Black male students were 2.22 more likely to be suspended, which can also be expressed as Black male students were 122% more likely to be suspended than White male students. Another example shows how to calculate percentage when the exponentiated beta is less than 1. Hispanic male students had an exponentiated beta of 0.41. Subtracting the one reveals that Hispanic male students were 59% (1 – 0.41 = 0.59) less likely to be suspended than White male students in the 2011-12 academic year.

Table 13

Exponentiated Beta Statistics for Sixth Grade Male Students

	Compared to White students		Compared to Paid Lunch students	Compared to General Education students
School Year	Black	Hispanic	F/R Lunch	Special Education
2011-12	**2.22**	**0.41**	**2.00**	**1.64**
2012-13	**1.41**	**0.64**	**3.23**	**2.45**
2013-14	**2.00**	**0.44**	**2.99**	0.87

In other words, Black male students were 2.22, 1.41, and 2 times more likely to be suspended than White male students in the three years under study. On the other hand, Hispanic male students were statistically significantly less likely to be suspended than White male students during each of the three academic years. Boys with free and reduced lunch status were 2, 3.23, and 2.99 times more likely to be suspended over the three-year period compared to boys with paid lunch status. Male students with a disability were 1.64 and 2.45 times more likely to be suspended than general education male students during the first two years under study. All of these percentages were statistically significant. The only category that showed no statistical significance was male students with a disability in the 2013-14 school year. Male students with

a disability were actually less likely to be suspended from school when compared to the general education male student population (See Appendix J for complete details).

In summary, suspensions for male students who were Black, free/reduced lunch status, and receiving special education significantly declined in year three, the year of full implementation of SWPBS. At the same time, these same groups of boys remained at much higher risk of receiving disciplinary action than their White, paid lunch status, and non-disabled male peers.

RQ 5. Differences in state test cut scores in relation to suspensions/ODRs

An independent samples t-test was conducted to compare the mean of ODRs and suspensions among boys who passed and boys who failed the ELA and mathematics portions of the state test for each year under study. The first section of the t-test provides group statistics including the sample size, mean and standard deviation.

Figure 12. ODR Mean Scores for Boys Above and Below Cut Score

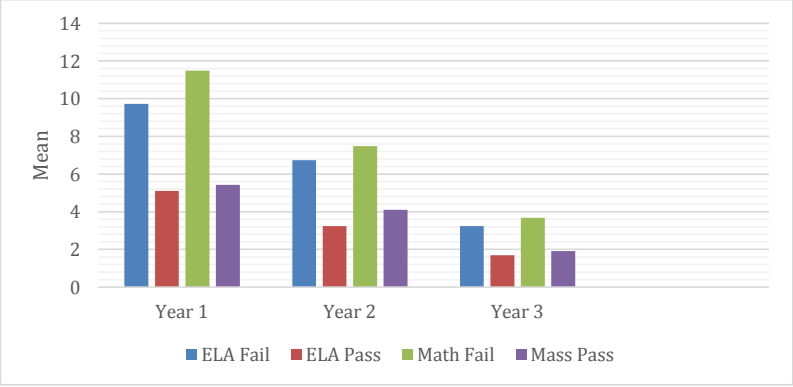
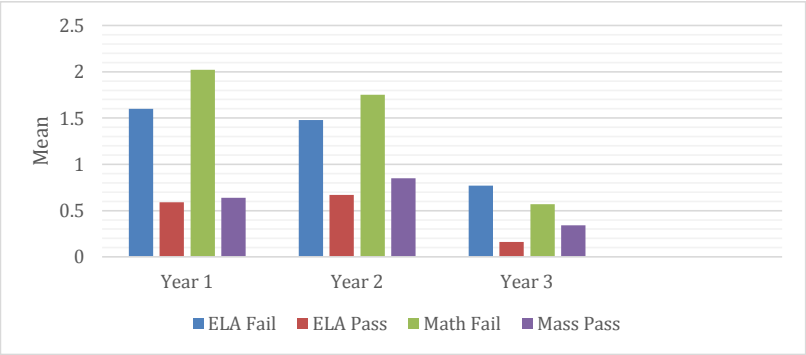


Figure 12 shows the average number of ODRs sixth grade Starlight male students received when they either failed or passed each state standardized test content area for each year. The ODR mean score is substantially lower for the male students who passed either the ELA or mathematics state test for each academic year. The mean value for ODRs also decreased in each

category over the three-year period. It is noteworthy that the number of ODRs received by boys who failed either the ELA or the mathematics portion of the test was nearly double the number of ODRs received by boys who passed either portion.

The average number of suspensions male students received when either failing or passing for each year under study is displayed in Figure 13. The mean value of suspensions was considerably lower for male students who passed the ELA or mathematics state test, with the exception of the Year 3 mathematics test.

Figure 13. Suspension Mean Scores for Boys Above and Below Cut Score



The t-test data showed through the Levene's Test that the p-value ($p < .001$) was very small in all cases, which denotes equal variances cannot be assumed. This happened because a majority of Starlight boys passed both portions of the state test. There was a statistically significant difference in mean ODRs between male students who passed and failed the state ELA test for all three years under study. The mean ODRs was statistically significant for boys who passed and failed the state mathematics test for the 2011-12 and 2012-13 school year. Table 14 provides the independent samples t-test data and illustrates statistical significance in 5 out of the 6 ODR cases.

Table 14

Statistical Significance of ODRs Above and Below Cut Score

	ELA Pass/Fail				Mathematics Pass/Fail			
Academic year	t	df	Sig. (2-tailed)	Mean Dif.	t	df	Sig. (2-tailed)	Mean Dif.
2011-12	3.32	137.57	**.001**	4.63	3.59	76.65	**.001**	6.07
2012-13	2.46	89.33	**.016**	3.50	2.35	79.02	**.022**	3.38
2013-14	2.09	111.78	**.039**	1.54	1.58	51.40	.120	1.77

Table 15 illustrates the independent sample t-test data for mean suspension occurrences for male students below and above the ELA and mathematics cut scores. In five out of the six cases the mean suspension occurrences for boys who passed and boys who failed the state test were significantly different. ELA cut scores showed a statistically significant difference each year. Boys who passed or failed the mathematics portion showed significant differences in the first two years under study (See Appendix K for complete details).

Table 15

Statistical Significance of Suspensions Above and Below Cut Score

	ELA Pass/Fail				Mathematics Pass/Fail			
Academic year	t	df	Sig. (2-tailed)	Mean Dif.	t	df	Sig. (2-tailed)	Mean Dif.
2011-12	4.24	125.54	**.000**	1.01	4.58	69.57	**.000**	1.38
2012-13	2.55	96.75	**.012**	0.81	2.55	74.64	**.013**	0.90
2013-14	3.57	95.48	**.001**	0.61	1.22	60.44	.227	0.20

Summary

This analysis examined outcomes for a total of 740 sixth grade boys during the three years of Starlight's implementation of School-wide Positive Behavior Supports (SWPBS). It began by examining the differences in office discipline referrals (ODRs) and suspensions for sixth grade boys and compared those differences across demographic groups. For all three cohorts of boys during the study, ODRs decreased significantly in year two, the year of partial

implementation and year three, the year of full implementation of SWPBS. The overall percentage of boys receiving ODRs decreased from 70.3% in year one to 44.9% in year three. Although this is a significant decrease, it also means that even in the full implementation year nearly half, or 111, male sixth graders were referred to the office for discipline. The analysis also examined ODRs in categories of frequency per male student. From year one to year three, categories of greater than 6 ODRs were reduced by more than half. Each identified demographic group of male students had declines in rates of ODRs each year. However, Black male students remained at significantly higher risk for receiving ODRs, even in year three.

Similarly, suspensions decreased slightly in year two, and significantly in year three when SWPBS was fully implemented. In year one, 33.6% or 86 boys were suspended. In year three, 18.2% or 45 boys were suspended. The number of male students receiving one suspension remained consistent all three years. The number of boys receiving 2 or more suspensions declined from a total of 66 students to 22 students in year three. In year two, the year of partial SWPBS implementation, suspensions increased for boys who were low SES and boys receiving special education services. Suspensions for every demographic group decreased significantly by year three. However, Black male students and low SES male students remained at significantly higher risk for suspension during all three years. Boys receiving special education services remained at significantly higher risk for suspension in years one and two, but were less likely than their general education male peers to be suspended in year three.

This study further examined the differences in state standardized mathematics test scores and state standardized English/Language Arts (ELA) test scores for sixth grade boys and compared them across demographic groups. During the three years of the study, there was no statistically significant improvement for sixth grade boys' overall passage rates on the state

standardized test within and among demographic groups. There were, however, significant differences in scores attained by boys experiencing varying levels of ODRs and suspensions. Boys who had either zero ODRs or zero suspensions scored significantly higher in both content areas of the state test. In total, boys who had 6-10 ODRs scored significantly lower on the mathematics portion, and boys who had 11-15 ODRs scored significantly lower on the ELA portion of the test. Boys who had 16 or more ODRs scored significantly lower on both portions of the test.

Similarly, suspensions had a statistical relationship on mean test scores. Boys with just one suspension had significantly lower mean scores in both ELA and mathematics content areas of the state test. Boys in every suspension category had significantly lower test scores in one or both portions of the test. Finally, data were analyzed to determine if there were differences for boys who received ODRs and suspensions in comparison to standardized test cut scores. For all three years, boys who failed the language arts portion of the state test had significantly higher mean occurrences of ODRs and suspensions. Boys who failed the mathematics portion of the state test also had significantly higher mean occurrences for ODRs and suspensions, except during year three. Limitations, major findings, conclusions, and implications for action and research will be presented in Chapter 5.

CHAPTER FIVE: CONCLUSIONS

This chapter provides a brief summary to learn about the relationship between the implementation of Schoolwide Positive Behavior Supports (SWPBS) and three cohorts of sixth grade boys in an urban middle school. Following the summary, findings will be presented, linked to research literature on boys' experiences in school disciplinary systems, and factors influencing those experiences, including ethnicity, special education services, and socioeconomic status (SES). The chapter will then provide implications for practice and additional research.

Overview of the Problem

Well intended policies sometimes have unintended consequences. Zero tolerance policies, intended to combat illegal drugs and school violence, exemplify this conundrum. In general, zero tolerance can be defined as a specified, punitive response to be used without consideration of unique contexts (Skiba et al., 2013; Teske, 2011). Male students experience the impact of zero tolerance at disproportional rates in both frequency and harshness of disciplinary consequences. Disproportional discipline of male students is higher yet for Black male students, male students with disabilities, and those living in poverty (USDOE, 2014).

Every year of school is important, but evidence points to middle school as a particularly defining period for boys (Middle School Matters, 2015). Specifically, research shows a relationship between sixth grade boys' behavioral and academic outcomes and high school completion (Balfanz, 2009). Traditional disciplinary policies typically focus on boys' problems and not on school environments as causes of negative behavior. School-wide Positive Behavior Supports (SWPBS) challenges this approach and offers an alternative to zero tolerance policies. Particularly at the elementary level, SWPBS has been shown to reduce office disciplinary referrals (ODRs) and suspensions and improve school culture (Bradshaw et al., 2009; Bradshaw

et al., 2012; Caldarella et al., 2011; Horner et al., 2010; Irvin et al., 2004; Nocera et al., 2014; Sugai, & Horner, 2006, 2009).

While SWPBS offers a potential alternative to traditional middle school disciplinary practices, the wide array of middle school structures makes implementing SWPBS challenging (Caldarella et al., 2011; Prewett et al., 2012). Middle schools struggle with providing a school culture in which students are allowed to make developmentally appropriate mistakes without unnecessarily severe consequences. Additionally, leadership philosophy and commitment have been shown to have practical implications for the implementation and effectiveness of SWPBS (Deal & Peterson, 2016; Leithwood & Jantzi, 2006).

This study examines the relationship of SWPBS as a Tier 1, Response to Intervention (RTI) strategy, through the specific leadership philosophy of Invitational Theory. Making use of abundant archival data, this study examines whether SWPBS makes a difference in the unique environment of middle school for three cohorts of boys. It pays careful attention to those groups of boys who have been traditionally marginalized in schools and in society, and who are often over-represented in school discipline.

Purpose Statement

The purpose of this study is to examine differences between academic and behavioral outcomes for three cohorts of sixth grade boys enrolled at Starlight Middle School over a period of three years. A comparison is made between pre-, partial, and full intervention data, during three years of implementation of SWPBS at this middle school. SWPBS was implemented as a universal, or school-wide, strategy representing the first of three tiers in a Response to Intervention (RTI) framework. The independent variables are ethnicity, special education, and

socioeconomic status (SES). The dependent variables are office disciplinary referrals (ODRs), suspensions, and state standardized test scores.

Research Questions

The research questions that guide this study are:

1. During the three years of Starlight's implementation of School-wide Positive Behavior Supports (SWPBS) under study, (2011-12, 2012-13, 2013-14), what is the difference in office discipline referrals (ODRs) and suspensions for sixth grade boys and how does this compare across demographic groups?
2. During the three years of Starlight's implementation of SWPBS under study, (2011-12, 2012-13, 2013-14), what is the difference in the state standardized mathematics test scores and the state standardized English/Language Arts (ELA) test scores for sixth grade boys and how does this compare across demographic groups?
3. How have Starlight's state standardized test scores changed for sixth grade boys during 3 years of SWPBS implementation, (2011-12, 2012-13, 2013-14), when controlling for student demographics, ODRs, and suspensions?
4. How have Starlight's suspension rates changed for sixth grade boys during 3 years of SWPBS implementation, (2011-12, 2012-13, 2013-14), when controlling for student demographics, including ethnicity, special education, and socioeconomic status (SES)?
5. What are the differences in Starlight's ODRs and suspensions for sixth grade boys above and below the state standardized ELA and mathematics cut score during the three years under study, (2011-12, 2012-13, 2013-14)?

Review of Research Methods

The sample population consisted of 740 sixth grade boys in Starlight Middle School, a Midwestern district of approximately 7,000 students, during a three-year period. There was little variation in the ethnic composition of student enrollment over the three years. On average, across the three distinct cohorts, the male sixth grade students were 50% White, 25% Hispanic, 16% Black, and 9% other. Starlight's special education population during these three years was approximately 15%, and the majority of students (73%) in the sample qualified for free and reduced lunch. The majority of students (70%) also passed the state standardized mathematics and ELA tests.

This ex post facto study looked for significant differences in ODRs, suspensions or standardized test scores during partial (Year 2) and full implementation (Year 3) of SWPBS. Sixth grade boys received the vast majority of disciplinary action. Boys received 75% of ODRs while sixth grade girls received 25%. For suspensions, sixth grade boys received 76%, while sixth grade girls received 24%. ODRs, suspensions and standardized test scores were the dependent variables. The independent variables were ethnicity, socioeconomic status (SES), special education, during SWPBS implementation. Both descriptive and inferential statistics were used. Independent sample t-tests, analysis of variance (ANOVA) tests, and Poisson regressions were used to investigate differences in the dependent variables. Other tests used were the Welch test for robustness, Omnibus test, Wald Chi-Square, Dunnett T3 post hoc, and Tukey's post hoc.

Limitations

This study relied on archival disciplinary data retrieved from PowerSchool, the student data management system used at Starlight Middle School. This provided data on office

disciplinary referrals (ODRs) and suspensions. Accuracy and consistency in how discipline was entered into PowerSchool was a limitation of the study. Teachers had the capacity to record behaviors to create a log without necessarily identifying discipline on the subject line, which might have resulted in the exclusion of that data. Teachers may have been inconsistent in recording behavior as discipline due to varying levels of tolerance for certain behaviors. Teachers may have been biased against certain students, resulting in over-reporting or had favoritism for certain students, resulting in under-reporting of ODRs.

The study had additional limitations in the accuracy and consistency of suspension data. Administrators, including myself as principal, along with three other assistant principals had responsibility for and authority for suspensions. Administrators' perceptions of the appropriateness of suspension as a consequence could have been subjective. Administrators could have been biased against certain students or given preferential treatment to others. Administrative assistants were responsible for entering suspension data and could have made errors or omissions.

There were limitations in the implementation of SWPBS. There is a framework for implementation of SWPBS with fidelity, not a specific formula or curriculum, which could have resulted in inconsistencies during implementation. During each year of the study, there was teacher and administrator turnover. Although teachers received the same training during years two and three, individual teachers could have interpreted the training differently. Culturally Responsive School-wide Positive Behavior Supports (CR-SWPBS) recognizes that both academic and behavioral learning are mediated by culture. Though it has a diverse student population SWPBS, implemented in Starlight, did not specifically incorporate training components of CR-SWPBS. State standardized test data were retrieved to analyze differences in

academic performance during the three years of the study. A limitation of using this data is that teachers proctor the state standardized tests, which could cause discrepancies in test administration. Standardized tests are pass/fail and do not provide detailed analysis of individual student performance.

Findings Related to the Literature

The relationship between student behavior and academic performance is a developing focus of educational research (Morrison & D'Incau, 1997; Scott, Nelson, Liaupsin, 2001). SWPBS, as a vehicle for improving both student behavior and academic outcomes, needs to be investigated more fully (Lassen et al., 2006). This study extends the existing literature on SWPBS by examining specific indicators of school functioning for sixth grade boys during three school years. It does so by first providing a detailed examination of occurrences and relationship of office disciplinary referrals (ODRs), followed by an analysis of suspensions, and finally, the relationship of disciplinary incidences on state test performance.

Ample research points to the negative consequences of suspensions and ODRs, which continue to be the primary disciplinary consequences used in schools (Caldarella et al., 2011; Children's Defense Fund, 2014; Cregor & Hewitt, 2011; Gregory, Skiba, & Noguera, 2010). Nationally, male students receive far more disciplinary consequences than female students (USDOE, 2016). Starlight Middle School was no exception to this trend. For each of the three years of the study, sixth grade male students were 74%, 75%, and 78% of those receiving ODRs. Similarly, sixth grade male students received 82%, 72%, and 75% of suspensions respectively during the same three year period.

Implementation of SWPBS at Starlight Middle School was motivated by both the high number of suspensions and office disciplinary referrals (ODRs) students were receiving, and by

the seeming absence of an alternative response to negative student behavior. SWPBS offers a framework for restructuring school discipline from a system of consequences into a process for supporting desired behavior, thereby positively transforming school culture (Bradshaw et al., 2009; Bradshaw et al., 2012; Caldarella et al., 2011; Horner et al., 2010; Irvin et al., 2004; Sugai & Horner, 2006, 2009).

Commitment to SWPBS implementation at Starlight was guided by a leadership philosophy of Invitational Theory, which holds that school leaders can positively impact school culture, and that outcomes for students are enhanced by a culture built on trust, respect, and optimism (Haigh, 2011; Lee, 2012; Okaya et al., 2013; Purkey & Strahan, 1995; Shaw, 2013; Shaw & Siegel, 2010; Usher & Pajares, 2006). Leadership philosophy as a driver of SWPBS has been shown to be an important influence in attaining teacher buy-in to achieve fidelity as school administrators model expectations, set and monitor behavioral goals, provide staff training, and promote collaboration (Deal & Peterson, 2009; Leithwood & Jantzi, 2006).

While the goal of implementation of SWPBS was to improve school culture to benefit all students at Starlight Middle School, this study focuses specifically on differences over the three years for sixth grade males who were clearly overrepresented in the school's disciplinary system. In Year 1 of the study, traditional disciplinary practices, as outlined in the student handbook, were in use at Starlight. During that year, slightly more than 70% of sixth grade boys were assigned an ODR. By Year 3, the year of full implementation of SWPBS, that had fallen to just under 45% of sixth grade boys receiving an ODR. Suspensions also declined from a rate of nearly 34% of sixth grade boys suspended in Year 1 to 18% of sixth grade boys suspended in Year 3. Both of these forms of discipline, ODRs and suspensions, showed statistically

significant decreases by Year 3, which is consistent with other research on the positive impact of SWPBS (Caldarella et al., 2011; Lassen et al., 2006; Nocera et al., 2014).

Starlight provides an excellent opportunity to add to practice based literature on SWPBS because demographic distributions the student population closely reflect the growing diversity of the nation. Some research suggests that SWPBS can be effective in diverse, high-poverty, urban schools, even when those schools start with high rates of discipline, as was the case at Starlight (Warren et al., 2006). Such an optimistic perspective may underscore the need to look more precisely at who benefits from SWPBS (Vincent & Tobin, 2010). Findings of reductions in ODRs and suspensions are often the result of studies that, like the data presented above, show positive results for reducing discipline for the entire population, in this case, 740 sixth grade boys. While averaged results for entire populations may be associated with positive outcomes, research points to the persistent disproportionality among certain subgroups indicating the need for more refined analyses (Vincent et al., 2011). This study contributes to the literature by using extensive archival data to do just that. The resulting probe shows that Starlight's efforts to reduce disciplinary referrals had mixed results for distinct demographic groups of male sixth graders.

Office Discipline Referrals (ODRs). The percentage of White male sixth grade students receiving ODRs in Year 1 was 64%, with percentages of ODRs for this specific group declining each year to 58% and then 44% in Year 3. Different results were found for Hispanic and Black male sixth graders. Some literature on rates of ODRs for Hispanic students shows disparities in referrals with significant overrepresentation at the middle school level (Skiba et al., 2011). This was not the case for Hispanic male sixth graders at Starlight Middle School who started with a

base rate of 67% referred for ODRs in Year 1, comparable to White male students, and declined more than White male sixth grade students to 53% in Year 2, and 35% in Year 3.

ODRs and Black male sixth graders. This was far from the findings for Black male sixth grade students, a result which was predicted by extensive research on the disproportional use of exclusionary discipline for African American students (Civil Rights Project, 2000; Gonzalez, 2015; Gregory et al., 2010; Losen et al., 2015, 2016; Morris & Perry, 2016; Noguera, 2009; Noguera & Wing, 2006; Raffaele Mendez, 2003; Sergiovanni et al., 2009; Skiba et al., 2000, 2011, 2014; Teske, 2011; USDOE, 2014, 2016; Vincent & Tobin, 2010; Vincent et al., 2011; Wallace et al., 2008).

Skiba et al. (2011) found in a national sample that African American middle school students had nearly four times the likelihood of receiving an ODR. Consistent with that finding, Black male sixth graders at Starlight had a singularly high base rate of ODRs in Year 1. The first year percentage of 93% means that 37 out of 40 Black male students were assigned ODRs. Black male sixth graders' rates of ODRs declined from Year 1 (93%) to Year 2 (79%). ODRs for Black male sixth grade students continued to decline to 69% in Year 3, a significant decrease from Year 1, but still higher than the base year rate of ODRs for either White or Hispanic male sixth graders. Research shows that Black students experience discipline for more subjective reasons, which might offer insights into the ODR rates experienced by Black male sixth graders at Starlight (Cornell, 2013; Wallace et al., 2008). These results add to the literature which challenges the effectiveness of SWPBS to decrease disciplinary disproportionality for African American students and the need to explore whether culturally responsive SWPBS (CR-SWPBS) holds greater promise for changing this inequity (Brown-Jeffy & Cooper, 2011; Vincent et al., 2011).

ODRs and sixth grade boys receiving special education services. SWPBS at Starlight was implemented within a Response to Intervention (RTI) model as a universal, or Tier 1, intervention for the benefit of all students (Solomon et al., 2012). Individuals with Disabilities Education Improvement Act (IDEA, 2004) require the use of strategies like SWPBS which are predicated on scientifically based research (SBR) and intended to address overrepresentation in special education identification (Shores & Bender, 2007; Sugai & Horner, 2009).

Nationally, boys are not only disproportionately disciplined, but they are three times more likely to be identified for special education (Gregory et al., 2010). Boys comprise 51% of public school enrollments, but 66% of students receiving special education services. Starlight sixth grade boys closely mirror national data as they are 51% of the sixth grade student population but represent 65% of sixth graders in special education.

At Starlight, 78% of male sixth graders receiving special education services received ODRs in Year 1, as opposed to 68% of their peers in the general education setting in the same year. In Year 2, 56% of sixth grade boys in general education received ODRs, in sharp contrast to Year 2 results for those receiving special education services which saw a slight increase to 79%. Both of these groups of sixth grade boys saw declines to similar levels in Year 3 with ODRs assigned to 49% of those receiving special education services and 44% of those receiving general education.

The aspiration of an effective Tier 1 RTI behavioral strategy is that 80-90% of students will require no further intervention to remain out of the disciplinary system (Shores & Bender, 2007). While having nearly half of any student population still receiving ODRs in the full year of SWPBS implementation is an important fact to be discussed, the relative equality in the percentages of each of these group's rates of referral is also important. Research shows that

students receiving special education services are twice as likely to be disciplined than students in the general education population (Cregor & Hewitt, 2011). Results for Starlight show more equitable distributions of general education and special education sixth grade male students was attained. This is also important in terms of adherence to special education law, as using SWPBS as a proactive strategy for special education students complies with IDEA recommendations (Warren et al., 2006). Starlight's success in attaining a decline in disciplinary referrals is important as the population of students receiving special education (16.7%) is comparable to the national level of 14% of students (USDOE, 2016).

ODRs and sixth grade boys with free/reduced lunch status (low SES). In contrast, Starlight's level of students receiving free/reduced lunch (74.4%) is considerably higher than the national rate of 50% (USDOE, 2016). In this study, lunch status was used to identify the percentage of students with low socioeconomic status (SES). Examining differences in ODRs for Starlight's low SES students is important because studies show that sixth graders with consistently negative behaviors were less likely to complete high school, particularly those attending high poverty schools (Balfanz, 2009; Irvin et al., 2004). At the same time, some research suggests that high poverty levels do not hinder successful implementation of SWPBS (Frank, Horner & Anderson, 2009).

There were declines in ODRs for male sixth graders at Starlight who were low SES during the three years under study. However, in Year 1, this group had a referral rate of 73%, notably higher than the Year 1 rate for their more economically advantaged peers at 63%. During Year 2, when SWPBS was partially implemented, paid lunch status sixth grade boys' rates of ODRs declined more sharply to 47%, while low SES sixth grade males' rates declined to 66%. Nonetheless, and consistent with research, both of these groups achieve comparable rates

of ODRs in Year 3 when SWPBS was fully implemented with free/reduced lunch status male sixth graders at 45% and their paid lunch status counterparts at 44%. This study helps to understand the relationship of SWPBS on ODRs. This is important because ODRs are the most frequently used and most subjective forms of school discipline (Losen, 2015). In middle school, this is perhaps even more critical as some research shows that, at this level, students with multiple ODRs were less likely to graduate from high school (Balfanz, 2009). Reducing the incidence of ODRs at this level could have long term benefits for students.

Suspensions. Fueled by the war on drugs of the 1980's, and expanded under the 1994 Gun Free Schools Act, zero tolerance policies expanded into various domains, including all levels of education from preschool to high school (Brady, 2002; Raffaele Mendez & Knoff, 2003; Skiba & Knesting, 2001; Skiba et al., 2014). Expansion of zero tolerance policies and their interpretation mitigated more nuanced responses to negative student behavior and blurred the lines between school discipline and the judicial system (Raffaele Mendez & Knoff, 2003; Skiba & Knesting, 2001; Skiba et al., 2014). The result was a steady climb in suspension as a form of punishment used for a wide array of non-violent, and often subjective offenses (Teske, 2011; Wallace et al., 2008). Frequently, for the most vulnerable groups of students served in public schools, increased use of suspension had a long term negative impact (Raffaele Mendez, 2003; Solomon et al., 2012; Wallace et al., 2008). In fact, one study found that suspension is a strong predictor of incarceration by ninth grade (Cregor & Hewitt, 2011).

A careful scrutiny of suspensions adds an important element to the literature on student problem behavior that is rarely examined independently (Lassen et al., 2006). Studies show that school administrators' approaches to discipline and use of suspension are proportional to their vocal support for zero tolerance disciplinary practices (Cregor & Hewitt, 2011). School

administrators who rely on zero tolerance policies often fail to consider the circumstances of the behavior, despite possessing the authority to do so (Brady, 2002; Noguera, 2009; Skiba & Knesting, 2001; Skiba et al., 2014). Building the practical research base on SWPBS, as an alternative to suspension, is needed to contribute to the literature in meaningful and applicable ways for school leaders (Cregor & Hewitt, 2011; Fenning et al., 2004; Losen et al., 2015; Skiba et al., 2011).

Suspension and Black male sixth graders. While the use of suspension nationally has increased generally throughout the past four decades, the frequency of suspension from school has been most severe for Black students. In the 1972-73 school year, 6.1% of White students and 11.8% of Black students were suspended, by the 2009-10 school year, that had changed to 7.1% of White students suspended compared to 24.3% of Black students. The impact is greatest for Black males, of whom 30%r receive suspensions in high school and 31% in middle school, much higher rates than experienced by their White male peers (Cornell, 2013). At Starlight, suspension risk for Black male sixth graders improved during the three years of the study, but remained inequitable.

In Year 1, 75% of Black male sixth graders were suspended, compared to 29% of White male sixth graders. In Year 2, rates declined more sharply for Black male sixth graders to 52%, while lowering only slightly for White sixth grade boys to 28%. Research suggests that stronger implementation of SWPBS was associated with a statistically significant reduction in suspensions (Vincent et al., 2011). Consistent with this, in Year 3, when SWPBS was fully implemented, both Black and White male sixth graders' rates of suspension declined. Still, the percentage of Black sixth grade boys who were suspended was 31%, nearly double that for White male sixth graders at 17%. Regression analysis showed that for Black male sixth graders

the risk of suspension remained a statistically significant level higher than the risk of suspension for White male sixth graders. In fact, Black sixth grade boys were two times more likely to be suspended than their White male peers in Year 3.

Suspension and Hispanic male sixth graders. In contrast, Hispanic male sixth grade boys had statistical significance for lower risk of suspension each year in comparison to White male sixth graders. The percentage of Hispanic sixth grade boys receiving suspensions fell from 25% in Year 2 to 12% in Year 3, resulting in a lower rate than either Black or White sixth grade boys. At Starlight, Black male sixth graders represented 17% of the 540 sixth grade boys who were in the free/reduced lunch status category (low SES), but 26% of all sixth grade boys who were suspended. The continuing inequity of suspension rates for Black sixth grade boys at Starlight provides support for existing literature challenging the rationalizing of harsher disciplinary consequences for Black students as a result of higher incidents of negative behavior or higher levels of poverty (Cornell, 2013). However, sixth grade boys with free/reduced lunch status also remained at a statistically significant higher risk for suspension following full implementation of SWPBS.

Suspension and sixth grade boys with free/reduced lunch status (low SES). In Year 3, boys with free/reduced lunch status (low SES) were almost three times more likely to be suspended than their paid lunch status peers. This, despite progress in reducing percentages of free/reduced status sixth grade boys who were suspended from 39% in Year 2 to 22% in Year 3. While that shows improvement, the Year 3 percentage of low SES sixth grade boys who were suspended was the same as the percentage of more affluent peers suspended in Year 1, before SWPBS was implemented. Paid lunch status sixth grade boys rates of suspension continued to decline in Year 2 (13%) and Year 3 (8%), a level much lower than their low SES peers.

Suspension and sixth grade boys receiving special education. An additional group at consistently greater risk for suspension is students with disabilities. Studies show that students receiving special education services are not only twice as likely to be suspended as peers in general education, but were also more likely to be repeatedly suspended in a single school year (Losen & Gillespie, 2012; USDOE, 2014). This is particularly disheartening, as the purpose of special education is to provide essential supports and accommodations to ensure the success of students with disabilities. Rather than being at high risk for suspension, the appropriate level of supports in special education should function as a shield from harsh disciplinary practices. As previously noted, boys are particularly vulnerable in this regard because they are identified for special education three times more often than girls (Gregory et al., 2010). Nationally, boys are 76% of students identified with emotional disabilities and 73% of students diagnosed with learning disabilities (Slocumb, 2004).

At Starlight, the percentage of suspended sixth grade boys in general education was 28%, declining slightly in Year 2 to 25%, and more significantly in Year 3 to 17%. For sixth grade boys receiving special education services, the sharpest declines in percentages of this population being suspended occurred between Year 2 (57%) and Year 3 (24%). Regression analysis shows that in Year 1, the risk for sixth grade boys receiving special education to be suspended was 1.64 times higher than their general education peers, which was statistically significant. In Year 2, the risk remained statistically significant with a suspension risk for sixth grade boys receiving special education 2.45 times higher than male sixth graders in general education. During Year 3, when SWPBS had been fully implemented, the risk for sixth grade boys receiving special education services actually fell to a level making them less likely to be suspended than their general education peers. This adds to existing literature showing the

greatest benefit to marginalized populations occurring when SWPBS is strengthened in schools (Vincent et al., 2011).

State Testing. Researchers have pointed out that beyond reporting outcomes related to ODRs and suspensions, an increased focus on how diminishing negative behaviors facilitates improved academic outcomes is needed (Warren et al., 2006). Yet research on the difference in academic outcomes following implementation of SWPBS reaches varied conclusions, with some showing slight improvements in standardized test scores (Muscott et al., 2008; Nocera et al., 2014). At Starlight, however, there were no statistically significant overall differences in scores for either portion of the state standardized test, mathematics or English Language Arts, during the three years under study. This is not an unanticipated outcome. Even as rates of ODRs and suspensions for sixth grade boys declined in Year 3, they remained higher than expected results for an effective Tier 1 RTI intervention. Research indicates that schools reliant on ODRs and suspensions have lower performance on standardized tests (Cregor & Hewitt, 2011). Even in Year 3, Starlight was still reliant on those forms of discipline with 45% of sixth grade boys receiving ODRs and 18% of boys suspended.

As previously stated, research showing reduced ODRs and suspensions when SWPBS is implemented often finds positive results when analyzing behavioral outcomes on the general population. This study adds to the literature in moving beyond generalized outcomes at Starlight and looking carefully at the relationship on specific groups of students. Similarly, concluding that the absence of significant changes in general test results for all sixth grade boys means that there was no relationship between ODRs and suspensions and test results is an incomplete story.

It is logical to anticipate improved academic performances when behavioral problems are decreased, if for no other reason than opportunities for student learning should be increased

(Warren et al., 2006). This study underscores the importance of analyzing the loss of instructional time due to disciplinary action.

State testing and ODRs. Male sixth graders at Starlight who were in categories receiving 11-15, 16-20, or 21+ ODRs had statistically significant decreases in mean scores for the ELA portion of the state test when compared to sixth grade boys who had zero ODRs. Similarly, sixth grade boys in categories receiving 6-10, 16-20, or 21+ ODRs had statistically significant decreases in scores for the mathematics portion of the state test when comparing to male sixth graders who had zero ODRs. Studies have shown one of the costs of student excursions to the office when ODRs are assigned is a loss of instructional time estimated to be between 20-45 minutes (Horner & Sugai, 2003; Lassen et al., 2006). This would mean that in Year 2 at Starlight, for example, the 71 students who failed the ELA portion of the state test had an average of approximately seven (20 minute) ODRs, meaning a collective loss of nearly 10,000 instructional minutes or nearly 165 hours.

State testing and suspensions. Sixth grade boys in any suspension category had statistically significant decreases in mean scores than sixth grade boys who had zero suspensions. Mathematics state test mean scores were also significantly decreased for students in 1, 2, 3-4, or 5-6 suspension categories when compared to students in the zero suspension category. Further, the group of sixth grade boys who failed the ELA portion of the state test each year of the study had statistically significant increases in the average number of ODRs and suspensions than the group of sixth grade boys who passed each year. The group of boys who failed the mathematics portion also had statistically significant increases in the average number of ODRs and suspensions than the group who passed in years 1and 2. These findings support existing literature which found that students frequently removed from the instructional environment,

experienced reduced academic support, leading to increased academic failure (Gregory et al., 2010; Lassen et al., 2006; Morris & Perry, 2016; Skiba et al., 2011; Teske, 2011).

It is also important to note that the RTI framework can offer specific strategies for academic improvement and other strategies for behavioral improvement. Starlight focused on behavioral support in implementing SWPBS. Since test scores did not improve overall during the implementation of SWPBS, this may point to the need for a parallel focus on improved instructional strategies and the importance of integrating behavioral supports with academic supports (Nocera et al., 2014; Warren et al., 2006).

Major Findings

Quantitative data analysis revealed significant differences in ODRs, suspensions, and mean state test scores for sixth grade boys within and between groups when comparing the independent variables of ethnicity, special education services, socioeconomic status (SES), during SWPBS implementation. This section will be organized by major findings related to the research questions.

RQ 1. Differences in ODRs and suspensions for all sixth grade boys, and differences across demographic groups. During the three years under study, a significant reduction occurred in the percentage of boys who were suspended and in the percentage of boys who received ODRs. However, ODRs were reduced more readily. Specifically, decreases in ODRs of statistical significance occurred during partial implementation (Year 2) and during full implementation (Year 3) of SWPBS. Suspensions in every category also declined each year, but not at a level of statistical significance until SWPBS was fully implemented in Year 3. Indeed, the percentage of boys receiving suspensions remained over 30% for Year 1 and Year 2, but in Year 3 fell sharply to just slightly over 18% of male students. In spite of these declines in

disciplinary action, nearly 45% of sixth grade boys were referred to the office for discipline in the year of full implementation (Year 3).

RQ 2. Differences in state standardized test mean scores and compared across demographic groups. The study also examined state standardized test performance for each of the three years of SWPBS implementation. Overall, English language arts (ELA) and mathematics scores showed no statistically significant increases or decreases over the three-year period. The hope of SWPBS is that decreases in discipline correlate to increases in instructional minutes, resulting in improved academic outcomes (Lassen et al., 2006). The surprising results at Starlight, however, do not bear this hope out. The relationship of SWPBS on academic outcomes, as measured by state tests, was inconsistent. ELA mean scores generally increased over the three years of SWPBS implementation, while mathematics mean scores generally decreased during the same three years. Notably, Black male sixth grade students were the exception, as the mean mathematics scores for this group increased each year.

RQ 3. Differences in state test scores in relation to ODR and suspension categories and within demographic groups. Within demographic groups there were two anomalies. In Year 2, Hispanic male sixth graders' mathematics state test mean scores actually decreased significantly by over 38 points. Similarly, in Year 3, White male sixth grade ELA mean scores decreased significantly by over 25 points.

Analysis of data for all 740 male students in the study showed mean scores for male students who had six or more ODRs were significantly lower on both portions of the state test when compared to mean scores of male students who received zero ODRs. The same was true for suspensions for the total population of male students. Boys who were suspended had

significantly lower mean scores in every suspension category in either ELA or mathematics portions of the state test when compared to mean scores of boys who received zero suspensions.

RQ 4. Differences in suspension rates between demographic groups. The data analysis revealed variations in outcomes for specific demographic groups. For all three years, Black male students received significantly more suspensions when compared to White male students. In contrast, Hispanic male students received significantly fewer suspensions each year, when compared to White male students. Male students who had a free/reduced lunch status were suspended at higher rates compared to their paid lunch status male peers, for all three years. Male students receiving special education services were suspended at significantly higher rates than their male peers receiving general education in Year 1 and Year 2. This changed in Year 3, when there was no significant difference in suspension rates between the populations of male students receiving special education services and those who were not. In fact, in Year 3, when SWPBS was fully implemented, boys receiving general education were more likely to be suspended than boys receiving special education services.

RQ 5. Differences in state test cut scores in relation to mean rates of ODRs and suspensions. Quantitative analysis in this study support findings in the literature that there is a reciprocal relationship between academic and behavioral outcomes (Nocera et al., 2014). Sixth grade boys who passed the ELA portion of the state test experienced statistically significantly lower mean rates of ODRs and suspensions when compared to the mean rates of ODRs and suspensions for their peers who failed the ELA portion of the test. In fact, the level of mean rates of ODRs and suspensions for sixth grade boys who failed the ELA portion of the test was nearly double that of sixth grade boys who passed for all three years of the study. The difference in mean rates of ODRs and suspensions was also statistically significant when comparing sixth

grade boys who passed the mathematics portion to sixth grade boys who failed the mathematics portion, for Year 1 and Year 2. Mean rates of ODRs and suspensions for sixth grade boys who failed the mathematics portion in Year 3 were still higher than for those who passed, however not at a level of statistical significance.

Summary of major findings. Overall reductions in disciplinary action point to the positive relationship of full SWPBS implementation, but do not mitigate the frequency of disciplinary actions for individual boys who continued to experience high rates of school discipline. High frequency disciplinary actions were associated with lower mean scores on state tests. Additionally, reductions in school wide disciplinary actions do not indicate that every group of boys benefited in equal degrees. Suspensions for male students who were Black, free/reduced lunch status, and receiving special education services did significantly decline in Year 3, the year of full implementation of SWPBS. However, for the same groups of boys, the risk of disciplinary action remained much higher than for their male peers who were White, paid lunch status, or not receiving special education services. In short, disciplinary actions declined, but inequities persisted.

Implications for Action

This section first proposes recommendations for policy and practice changes in schools in response to what was learned from this study. The next part suggests implications for additional research stemming from findings. The final part of this section offers concluding remarks.

Recommendations for practice. Disciplinary systems in schools often bear a striking resemblance to criminal justice systems designed to punish adults (Noguera, 2008). The consequences of such punitive policies are staggering both for boys as individuals and for society as a whole (Lochner & Moretti, 2004). This study focused specifically on middle schools as a

part of the educational continuum when negative student behaviors increase, and more student-centered supports are replaced with consequence based disciplinary systems (Bradshaw et al., 2012; Middle School Matters, 2015; Solomon et al., 2011; Usher & Pajares, 2006). It is, therefore, an appropriate level at which to contemplate the purpose of school discipline (Noguera, 2003). Ostensibly, the purpose of discipline is to increase desired behaviors leading to increases in student achievement. Zero tolerance inspired policies, increasing the use of out of class and out of school consequences for students, have not resulted in safer schools or in higher levels of academic achievement (Caldarella et al., 2011; Cregor & Hewitt, 2011; Gregory, Skiba, & Noguera, 2010). Yet suspensions and ODRs remain the most common responses to negative student behavior (Caldarella et al., 2011; Cregor & Hewitt, 2011; Gregory et al., 2010).

This study adds to the literature by offering practice based alternatives founded on the theoretical perspective of Invitational Theory. This theory is antithetical to disciplinary policies designed to punish unwanted behaviors. Grounded on democratic ideals, Invitational Theory asserts that this "doing to" response should be a "doing with" response (Purkey & Novak, 2015). It holds that members of a community who have a voice work toward common goals. In contrast, disinviting environments demean and debase individuals, further alienating them from the community (Purkey & Novak, 2015).

In the absence of an alternative guiding theory, school leaders are left with maintaining a system of punishments in response to negative behavior, often resulting in the alienation of those for whom public school offers the only path from poverty. Invitational Theory supports an alternative perspective that the purpose of discipline is to teach desired student behaviors to improve student outcomes (Okaya et al., 2013, Purkey & Novak, 2015). This is important, because although SWPBS offers an alternative to traditional responses to negative behavior, its

effectiveness is limited to the degree of leadership commitment to its success (Deal & Peterson, 2009; Leithwood & Jantzi, 2006; Nocera et al., 2014).

In an effort to reform public schools, commitment to academic achievement is now measured by performance on state tests aligned with grade level standards. SWPBS could provide a framework for the creation of developmentally appropriate social-emotional and behavioral standards, with performance indicators, resulting in measurable decreases in reliance on exclusionary disciplinary practices (Sailor et al., 2007). Such standards would provide a vehicle for responding to data to improve school culture while simultaneously providing evidence of and remediation for disproportional or subjective disciplinary practice (Nocera et al., 2014; Sailor et al., 2007; Teske, 2011; Wallace, et al., 2008).

Preparation programs for school administrators and teachers could integrate instruction on both academic and behavioral standards to increase awareness of the reciprocal relationship of student-centered practice in both of these domains (Fletcher & Tienda, 2010; Owens, 2016; Sailor et al., 2007). One benefit would be the deployment of teachers better prepared to focus their energy on teaching students as opposed to managing behavior (Ross & Horner, 2007; Tankersley, 2005; Warren et al., 2006). This would also be of particular benefit to new school administrators who, thrown into the intense, complicated, and varying demands of organizational leadership, would have effective tools to avoid the depletion of their limited time on individual incidents of misbehavior (Hanson, 2003; Lassen et al., 2006). Challenging the thinking of administrators is critical to changing the damaging course of zero tolerance policies as research has found that administrators who approve of such policies will rely more heavily on punitive practices to manage student behavior (Cregor & Hewitt, 2011). As increasing numbers of educators and administrators emerged from colleges and universities well versed in SWPBS,

school environments would evolve to increase sensitivity to the developmental needs of children and to better reflect the values of a democratic society (Deal & Peterson, 2009; Leithwood & Jantzi, 2006; Nocera et al., 2014).

Abundant school reforms, implemented with fervor and then abandoned, have yielded information about what works to create and sustain improvement. Successful efforts involve strong, committed building leadership and teacher-led changes, but also rely on system-wide, central office alignment with initiatives (Graczewski, Ruffin, Shambaugh, & Therriault, 2007). Sustained improvement also requires on-going professional development and coaching (Nocera et al., 2014; Ross & Horner, 2007).

Accountability must be part of the structures that cause a redirection of school disciplinary policies away from those that assuage the adult need for retribution toward the child-centered need for guidance. There is ample evidence that SWPBS can improve school climate, but only when implemented by strong, informed leaders, and well prepared teachers (Caldarella et al., 2011; Ross & Horner, 2007; Taylor et al., 2006). State-wide or national standards aligned with the framework of SWPBS, designed with measurable expectations for improvement, would expedite changes for students whose short tenure in public schools adds urgency to systemic change. There is particular urgency to hold schools accountable for the adverse effects of inequitable disciplinary practices for children who have been assigned disproportional and subjective consequences (Civil Rights Project, 2000; Gonzalez, 2015; Gregory et al., 2010; Losen et al., 2015, 2016; Morris & Perry, 2016; Noguera, 2009; Noguera & Wing, 2006; Raffaele Mendez, 2003; Sergiovanni et al., 2009; Skiba et al., 2000, 2011, 2014; Teske, 2011; USDOE, 2014, 2016; Vincent & Tobin, 2010; Vincent et al., 2011; Wallace et al., 2008).

Accountability for reform of school discipline is essential to change disproportionality which SWPBS alone has failed to consistently alter. One promising practice is culturally responsive school wide positive behavior supports (CR-SWPBS), however more research is needed to determine how it can be implemented effectively in schools with heterogeneous student populations (Kaufman et al., 2010; Skiba et al., 2014; Vincent et al., 2011). The reality is that cultural and social diversity is increasing as populations once relegated to the shadows increase activism and awareness of their marginalized status. For example, little research exists to examine the relationship of CR-SWPBS on gay and lesbian students who, some studies indicate, experience more school discipline than their straight peers (Cregor & Hewitt, 2011). Since even cultural responsivity could leave out a population who has not yet found a voice of advocacy, it seems that all students would be better served by fortifying SWPBS with the same degree of accountability schools now have for academic achievement. In so doing, the link between social supports and academic success would be made in a way that would eliminate a system which fails students, then holds students accountable for that failure.

Accountability, supported by a standards framework for SWPBS, would be most effective if outcomes included data analysis of equity, and successful implementation was measured by the extent to which the school environment supports all students (Vincent et al., 2011). This would not only help schools conform to requirements within the Individuals with Disabilities Education Improvement Act (IDEA, 2004), but also within the most recent revision of the federal K-12 law, Every Student Succeeds Act (ESSA, 2015), which contains provisions supporting equity in funding, achievement, and discipline for all students. Improving outcomes for all students is likely the only way to change outcomes for boys, because boys are among the

members of other disproportionately disciplined groups including Black students, students receiving special education, and students in poverty.

Recommendations for further research. Current disciplinary practices rely on what Pedro Noguera dubbed, "the bad apple theory". This theory holds that if problematic students are removed from the classroom, disruptions to others' learning will be stopped, and the "bad" student will serve as an example to others, preventing further unwanted behaviors (Noguera, 2009). School leaders who accept this theory must, by default, also conclude that it is not possible for all children to be successful in school. This is in direct conflict with professional standards for administrators, such as the Educational Leadership Constituent Council Standards (ELCC) which include a commitment to ensuring the success of every student, not just to those who are readily inclined to be compliant with behavioral expectations (National Policy Board for Educational Administration [NPBEA], 2011).

Research is needed to better understand how to challenge administrators to rethink disciplinary practices and the leadership philosophy that guides them. This is particularly important now, as White students in public schools no longer comprise a majority (NCES, 2016). While ethnic diversity of students has shifted dramatically in the past four decades, teachers are still mostly White and female. Preparation programs for administrators and teachers have not necessarily addressed this potential cultural mismatch (Brown-Jeffy & Cooper, 2011; Zygmunt-Fillwalk, Malaby, & Clausen, 2010). Research is needed to develop evidence based strategies for realigning pedagogical and disciplinary practices to meet the needs of increasingly diverse student populations. In particular, research is needed to understand how school leaders' theoretical frameworks help or hinder implementation of strategies designed to support traditionally disadvantaged students, whose numbers are growing in schools.

Reducing removal from the instructional environment is key to improving student outcomes, since the opportunity to remain engaged in learning is fundamental to academic success (Skiba et al., 2011). While studies have shown that students excluded from learning lose the benefit of academic support, more research is needed to understand the relationship between implementation of SWPBS and academic achievement (Cregor & Hewitt, 2011; Gregory et al., 2010; Lassen et al., 2006; Morris & Perry, 2016; Teske, 2011). This is important, because although SWPBS implementation shows gains in students' instructional minutes, it does not directly affect the quality of instruction (Gage et al., 2013). While SWPBS might be an effective RTI behavioral strategy, more research is needed to examine the effects of simultaneously implementing evidence based RTI academic strategies to better understand the reciprocal nature of academic and behavioral outcomes (Caldarella et al., 2011; Nocera et al., 2014). Longitudinal studies could also help understand the benefits, both behaviorally and academically, of sustained and strengthened SWPBS implementation (Lassen et al., 2006).

Studies have shown that SWPBS is associated with improvements in behavior when averaged across whole school populations. More research to demonstrate the relationship on specific populations within schools is needed to ensure its positive influence on all students (Caldarella et al., 2011; Lassen et al., 2006; Nocera et al., 2014). Literature suggests that CR-SWPBS can be more effective in meeting the needs of diverse student populations, but has been limited in scope (Cramer & Bennett, 2015; Vincent et al., 2011). For example, CR-SWPBS has been shown to improve school climate, but there is little research on whether these improved school environments are more conducive to boys' success (Owens, 2016).

Finally, the developmental needs of students vary significantly from one stage to the next. Schools also vary in every way from climate, to community norms, to allocation of

resources, level of diversity, and levels of affluence. This makes generalizing successful implementation of SWPBS to other schools challenging. Expanding case studies of single schools would help fill knowledge gaps to learn how to replicate successful implementation of SWPBS in similar school contexts (Caldarella et al., 2011; Lassen et al., 2006; Metzler et al., 2001). This would be particularly helpful at the middle school level, where the very definition and structure of middle school is extremely varied (Solomon et al., 2011). Successful SWPBS implementation at the middle school level could have extended benefits, as success or failure at this level is often seen as a predictor of later academic achievement (Balfanz, 2009; Cramer & Bennett, 2015; Metzler et al., 2001; Prewett et al., 2012; Wang & Holcombe, 2010). Particularly in middle schools like Starlight, with high base rates of disciplinary referrals, longitudinal studies are needed to see if reductions in problem behavior at this level, sustain improved outcomes in high school and post-secondary endeavors (Losen & Skiba, 2010; Warren et al., 2006).

Concluding remarks. This study is focused on middle school boys' failure in school, primarily as a consequence of harsh disciplinary practices, and the implications for society as these boys become men. The consequences of school failure, including poverty, illness, and incarceration, extend beyond men to their families and on to their children, who frequently repeat the cycle of failure (Civil Rights Project, 2000; Noguera, 2009; Owens, 2016; Skiba & Knesting, 2001). This study concludes that boys, though different from girls in rates of development, they are not simply unfit for the school environment; rather it suggests that school environments are sometimes unfit for boys (Owens, 2016). It offers suggestions for solutions, such as changes in disciplinary policies, school culture, educator training, and the development of social emotional standards designed to help all students navigate the path from school to a successful life beyond.

It contradicts the idea that removal of problem children will somehow strengthen schools for those who remain.

Once, girls in America were denied an education, and even when they overcame the odds and achieved academic excellence, they were denied the opportunities that should have followed. Shifts in employers' needs created new opportunities for women in the workforce (Owens, 2016). Today, women are outpacing men in educational attainment. Once again, the needs of the workforce are driving change. Historically, there were many jobs that required a strong work ethic and physical capacity. Technological advancements have reduced the need for physical labor and increased the need for the so-called soft skills of cooperation, communication, and critical thinking (Jennings & DiPrete, 2010; Lynch & Simpson, 2010; Rhoades, Warren, Domitrovich, & Greenberg, 2011). Clearly, alienating boys from school, particularly in adolescence, will not increase their capacity in this regard.

Changing outcomes for boys can begin in schools with committed leadership, whose philosophy guides culturally sensitive decision making supporting all students equitably (Vincent et al., 2011). Alternatively, changing this outcome for boys can begin in the community when informed parents and community stakeholders examine readily available data which calculates the cost of boys' academic failure (Fenning et al., 2004). Either way, boys' outcomes will improve when they are surrounded by administrators and teachers who invite them to realize their potential. This invitation to succeed, particularly when conveyed in middle school, a time when boys straddle the difficult line of demarcation between childhood and adulthood, will sustain them for the educational journey ahead (Balfanz, 2009; Usher & Pajares, 2006). Sitting in a Birmingham jail cell in 1963, Martin Luther King, Jr. said, "Whatever affects one directly, affects all indirectly. Injustice anywhere is a threat to justice everywhere." SWPBS, when

fortified by Invitational Theory, offers a strategy for moving schools forward as inclusive learning environments where all students are valued and none are left behind.

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Appendix A

Literature Alignment Table

	Leadership Disposition		Behavior Management Framework		Middle School Matters	
Authors	IT/Com-munity	Zero	RtI	SWPBS	Development	Boys
Arcia, 2006		X			X	
Balfanz, 2009	X	X		X	X	X
Bradshaw et al., 2009	X		X	X		
Bradshaw et al., 2012	X		X	X		
Caldarella et al., 2011	X		X	X	X	
Civil Rights Project, 2000		X			X	
Cramer & Bennett, 2015	X		X	X	X	
Fenning et al., 2004	X	X	X	X	X	
Gage et al., 2013	X		X	X		
Gregory & Noguera, 2010	X	X			X	X
Haigh, 2011	X					
Horner et al., 2010	X	X	X	X		
Irvin et al., 2004	X	X	X	X		
Johnson et al., 2013	X	X	X	X	X	X
Lassen et al., 2006	X	X	X	X	X	X
Lee, 2012	X	X				
McIntosh et al., 2013	X	X	X	X		
McKinney et al., 2010	X	X	X	X		
Middle School Matters, 2015	X	X			X	X
Muscott et al., 2008	X		X	X	X	X
Nocera et al., 2014	X	X	X	X	X	X
Noguera, 2009	X	X			X	X
Osterman, 2000	X					
Prewett et al., 2012	X		X	X	X	X
Raffaele Mendez, 2003	X	X				
Shaw et al., 2013	X					
Skiba & Knesting, 2001	X	X			X	X
Skiba et al., 1997		X			X	X
Slocumb, 2004	X	X			X	X
Solomon et al., 2012	X		X	X	X	
Stanley et al., 2004	X					
Sugai & Horner, 2009	X	X	X	X		
Turtura et al., 2013	X		X	X	X	X
Usher & Pajares, 2006	X				X	X
Vincent et al., 2011	X	X	X	X		
Wallace et al., 2008	X	X			X	X
Warren et al., 2006	X	X	X	X		
Weaver-Hightower, 2003	X	X			X	X

Appendix B

Nurture • Inspire • Empower

September 6, 2016

Kevin Maxwell
Principal, Sunnyside Intermediate School
530 N. 26th Street
Lafayette, Indiana 47904

Dear Mr. Maxwell,

The Lafayette School Corporation welcomes the opportunity to partner with you on the proposal that you are submitting as a doctoral dissertation project. The LSC understands that this project will study a possible relationship between academic and behavioral outcomes for three cohorts of 6th grade boys, comparing pre-, partial, and full intervention data, during the three years of implementation of School-Wide Positive Behavior Supports. The LSC understands data collected will include office discipline referrals (ODRs), suspensions, and ISTEP scores and that student confidentiality will be maintained at all times.

The proposed study has the potential to provide critical and foundational evidence for support systems that work with male students in their academic progress.

The Lafayette School Corporation looks forward to working with you on this study.

Sincerely,

Dr. John Layton
Associate Superintendent
Lafayette School Corporation
2300 Cason St.
Lafayette, IN 47904
jlayton@lsc.k12.in.us

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Appendix C

ODRs Received by Sixth Grade Boys and Girls

	Number of ODRs		Percentage of ODRs	
Year of study	Boys	Girls	Boys	Girls
2011-12	1787	618	74.3	25.7
2012-13	1185	404	74.6	25.4
2013-14	553	158	77.7	22.3
Total	3525	1180	74.9	25.1

Suspensions Received by Sixth Grade Boys and Girls

	Number of Suspensions		Percentage of Suspensions	
Year of study	Boys	Girls	Boys	Girls
2011-12	252	57	81.6	18.4
2012-13	254	99	72.0	28.0
2013-14	94	31	75.2	24.8
Total	600	187	76.2	23.8

Appendix D

Question 1a SPSS Tables: Generalize Linear Models

Categorical Variable Information

Factor/Academic Year	N	Percent
2013-14	247	33.4
2012-13	237	32.0
2011-12	256	34.6
Total	740	100.0

Continuous Variable Information

Dependent Variable	N	Minimum	Maximum	Mean	Std. Deviation
ODRs	740	0	53	4.76	8.48

Omnibus Test

Likelihood Ratio Chi-Square	df	Sig.
645.52	2	0.000

Dependent Variable: #ODRs
Model: (Intercept), year
a. Compares the fitted model against the intercept-only model

Test of Model Effects

	Type III		
Source	Wald Chi-Square	df	Sig
(Intercept)	5914.67	1	0.000
year	549.41	2	0.000

Dependent Variable: #ODRs
Model: (Intercept), year

Parameter Estimates

			95% Wald CI			Hypothesis Test			95% Wald CI for Exp(B)	
Parameter	B	Std. Error	Lower	Upper	Wald Chi-Square	df	Sig.	Exp(B)	Lower	Upper
(Intercept)	1.94	0.02	1.90	1.99	6747.18	1	0.000	6.98	6.66	7.31
[year=3]	-1.14	0.05	-1.23	-1.04	546.09	1	0.000	0.32	0.29	0.35
[year=2]	-0.33	0.04	-0.41	-0.26	79.33	1	0.000	0.72	0.67	0.77
[year=1]	0[a]							1		
(Scale)	1[b]									

Dependent Variable: #ODRs
Model: (Intercept), year

a¶ Set to zero because this parameter is redundant
b¶ Fixed at the displayed value

Categorical Variable Information

Factor/Academic Year	N	Percent
2013-14	247	33.4
2012-13	237	32.0
2011-12	256	34.6
Total	740	100.0

Continuous Variable Information

Dependent Variable	N	Minimum	Maximum	Mean	Std. Deviation
Suspensions	740	0	8	0.81	1.66

Omnibus Test

Likelihood Ratio Chi-Square	df	Sig.
97.29	2	0.00

Dependent Variable: Suspensions
Model: (Intercept), year
b. Compares the fitted model against the intercept-only model

Test of Model Effects

	Type III		
Source	Wald Chi-Square	df	Sig
(Intercept)	44.91	1	0.00
year	79.09	2	0.00

Dependent Variable: Suspensions
Model: (Intercept), year

Parameter Estimates

Parameter	B	Std. Error	95% Wald CI Lower	95% Wald CI Upper	Wald Chi-Square	Hypothesis Test df	Hypothesis Test Sig.	Exp(B)	95% Wald CI for Exp(B) Lower	95% Wald CI for Exp(B) Upper
(Intercept)	-0.02	0.06	-0.14	0.11	0.06	1	0.803	0.98	0.87	1.11
[year=3]	-0.95	0.12	-1.19	-0.71	61.83	1	0.000	0.39	0.31	0.49
[year=2]	0.09	0.09	-0.09	0.26	0.91	1	0.339	1.09	0.92	1.30
[year=1]	0[a]							1		
(Scale)	1[b]									

Dependent Variable: Suspensions
Model: (Intercept), year
c¶ Set to zero because this parameter is redundant
d¶ Fixed at the displayed value

Appendix E

Question #1b

Differences in ODRs when looking at Ethnicity

	# of ODRs							Percentage of	
Ethnicity	1-5	6-10	11-15	16-20	21+	Total	0	Overall Population	Referrals
2011-2012 School Year									
White	45	16	8	3	16	88	49	53.5	48.9
Black	8	10	6	4	9	37	3	15.6	20.6
Hispanic	27	7	1	2	2	39	19	22.7	21.6
Other	9	2	3	0	2	16	5	8.2	8.9
Total	89	35	18	9	29	180	76	100.0	100.0
2012-2013 School Year									
White	42	15	4	5	6	72	51	51.9	50.0
Black	10	2	6	1	4	23	6	12.2	16.0
Hispanic	21	7	3	0	3	34	30	27.0	23.6
Other	7	4	2	0	2	15	6	8.9	10.4
Total	80	28	15	6	15	144	93	100.0	100.0
2013-2014 School Year									
White	42	12	5	2	1	62	80	57.5	55.9
Black	13	0	3	2	2	20	9	11.7	18.0
Hispanic	20	3	0	0	0	23	41	25.9	20.7
Other	4	2	0	0	0	6	6	4.9	5.4
Total	79	17	8	4	3	111	136	100.0	100.0
Total									
White	129	43	17	10	23	222	180	54.3	51.0
Black	31	12	15	7	15	80	18	13.2	18.4
Hispanic	68	17	4	2	5	96	90	25.1	22.1
Other	20	8	5	0	4	37	17	7.3	8.5
Total	248	80	41	19	47	435	305	100.0	100.0

Differences in ODRs when looking at Socio-Economic Status (SES)

	# of ODRs							Percentage of	
SES Status	1-5	6-10	11-15	16-20	21+	Total	0	Overall Population	Referrals
2011-2012 School Year									
Free/Reduced	63	27	13	8	26	137	51	73.4	76.1
Paid	26	8	5	1	3	43	25	26.6	23.9
Total	89	35	18	9	29	180	76	100.0	100.0
2012-2013 School Year									
Free/Reduced	58	19	15	6	14	112	57	70.0	77.7
Paid	22	9	0	0	1	32	36	30.0	22.3
Total	80	28	15	6	15	144	93	100.0	100.0
2013-2014 School Year									
Free/Reduced	56	13	8	4	2	83	100	74.1	74.8
Paid	23	4	0	0	1	28	36	25.9	25.2
Total	79	17	8	4	3	111	136	100.0	100.0
Total									
Free/Reduced	177	59	36	18	42	332	208	73.0	76.3
Paid	71	21	5	1	5	103	97	27.0	23.7
Total	248	80	41	19	47	435	305	100.0	100.0

Difference in ODRs when looking at Students with Disabilities

	# of ODRs							Percentage of	
Special Education	1-5	6-10	11-15	16-20	21+	Total	0	Overall Population	Referrals
2011-2012 School Year									
Non-SPED	75	28	11	8	19	141	65	80.5	78.3
SPED	14	7	7	1	10	39	11	19.5	21.7
Total	89	35	18	9	29	180	76	100.0	100.0
2012-2013 School Year									
Non-SPED	63	21	8	4	11	107	83	80.2	74.3
SPED	17	7	7	2	4	37	10	19.8	25.7
Total	80	28	15	6	15	144	93	100.0	100.0
2013-2014 School Year									
Non-SPED	68	11	7	4	3	93	117	85.0	86.0
SPED	11	6	1	0	0	18	19	15.0	14.0
Total	79	17	8	4	3	111	136	100.0	100.0
Total									

Non-SPED	206	60	26	16	33	341	265	81.8	78.3
SPED	42	20	15	3	14	94	40	19.2	21.7
Total	248	80	41	19	47	435	305	100.0	100.0

Differences in Suspensions when looking at Ethnicity

	# of Suspensions							Percentage of	
Ethnicity	1	2	3-4	5-6	7-8	Total	0	Overall Population	Referrals
2011-2012 School Year									
White	9	11	8	10	1	39	98	53.5	45.3
Black	5	8	10	7	0	30	10	15.6	34.9
Hispanic	6	0	4	1	0	11	47	22.7	12.8
Other	0	4	1	1	0	6	15	8.2	7.0
Total	20	23	23	19	1	86	180	100.0	100.0
2012-2013 School Year									
White	11	3	5	11	4	34	89	51.9	45.9
Black	3	4	0	6	2	15	14	12.2	20.3
Hispanic	5	2	7	1	1	16	48	27.0	21.6
Other	4	1	1	2	1	9	12	8.9	12.2
Total	23	10	13	20	8	74	163	100.0	100.0
2013-2014 School Year									
White	14	4	3	2	1	24	118	57.5	53.3
Black	3	2	2	2	0	9	20	11.7	20.0
Hispanic	4	4	0	0	0	8	56	25.9	17.8
Other	2	2	0	0	0	4	8	4.9	8.9
Total	23	12	5	4	1	45	202	100.0	100.0
Total									
White	34	18	16	23	6	97	305	54.3	47.3
Black	11	14	12	15	2	54	44	13.2	26.3
Hispanic	15	6	11	2	1	35	151	25.1	17.1
Other	6	7	2	3	1	19	35	7.3	9.3
Total	66	45	41	43	10	205	535	100.0	100.0

Differences in Suspensions when looking at Socio-Economic Status (SES)

	# of Suspensions							Percentage of	
SES Status	1	2	3-4	5-6	7-8	Total	0	Overall Population	Suspensions
2011-2012 School Year									
Free/Reduced	16	15	21	18	1	71	117	73.4	82.6
Paid	4	8	2	1	0	15	53	26.6	17.4
Total	20	23	23	19	1	86	170	100.0	100.0
2012-2013 School Year									
Free/Reduced	18	10	12	18	7	65	104	70.0	87.8
Paid	5	0	1	2	1	9	59	30.0	22.2
Total	23	10	13	20	8	74	163	100.0	100.0
2013-2014 School Year									
Free/Reduced	21	10	4	4	1	40	143	74.1	88.9
Paid	2	2	1	0	0	5	59	25.9	11.1
Total	23	12	5	4	1	45	136	100.0	100.0
Total									
Free/Reduced	55	35	37	40	9	176	208	73.0	85.9
Paid	11	10	4	3	1	29	97	27.0	14.1
Total	66	45	41	43	10	205	305	100.0	100.0

Difference in Suspensions when looking at Students with Disabilities

	# of Suspensions							Percentage of	
Special Education	1	2	3-4	5-6	7-8	Total	0	Overall Population	Referrals
2011-2012 School Year									
Non-SPED	16	13	16	13	0	58	148	80.5	67.4
SPED	4	10	7	6	1	28	22	19.5	32.6
Total	20	23	23	19	1	86	160	100.0	100.0
2012-2013 School Year									
Non-SPED	18	8	4	12	5	47	143	80.2	63.5
SPED	5	2	9	8	3	27	20	19.8	36.5
Total	23	10	13	20	8	74	163	100.0	100.0
2013-2014 School Year									
Non-SPED	16	11	4	4	1	36	174	85.0	80.0
SPED	7	1	1	0	0	9	28	15.0	20.0
Total	23	12	5	4	1	45	202	100.0	100.0
Total									

Non-SPED	50	32	24	29	6	141	465	81.8	68.8
SPED	16	13	17	14	4	64	70	19.2	33.2
Total	66	45	41	43	10	205	535	100.0	100.0

White - ODRs

Categorical Variable Information

Factor/Academic Year	N	Percent
2013-14	142	35.3
2012-13	123	30.6
2011-12	137	34.1
Total	402	100.0

Continuous Variable Information

Dependent Variable	N	Minimum	Maximum	Mean	Std. Deviation
ODRs	402	0	53	4.43	8.50

Omnibus Test

Likelihood Ratio Chi-Square	df	Sig.
338.34	2	0.000

Model: (Intercept), year

a. Compares the fitted model against the intercept-only model

Test of Model Effects

	Type III		
Source	Wald Chi-Square	df	Sig
(Intercept)	2847.04	1	0.000
year	296.74	2	0.000

Model: (Intercept), year

Parameter Estimates

			95% Wald CI			Hypothesis Test			95% Wald CI for Exp(B)	
Parameter	B	Std. Error	Lower	Upper	Wald Chi-Square	df	Sig.	Exp(B)	Lower	Upper
(Intercept)	1.90	0.03	1.84	1.97	3306.88	1	0.000	6.69	6.27	7.13
[year=3]	-1.13	0.07	-1.26	-1.00	292.12	1	0.000	0.32	0.29	0.37
[year=2]	-0.39	0.05	-0.50	-0.29	53.45	1	0.000	0.68	0.61	0.75
[year=1]	0[a]							1		
(Scale)	1[b]									

Model: (Intercept), year

a. Set to zero because this parameter is redundant

b. Fixed at the displayed value

White – Suspensions

Continuous Variable Information

Dependent Variable	N	Minimum	Maximum	Mean	Std. Deviation
Suspensions	402	0	8	0.72	1.62

Omnibus Test

Likelihood Ratio Chi-Square	df	Sig.
47.81	2	0.000

Model: (Intercept), year

a. Compares the fitted model against the intercept-only model

Test of Model Effects

	Type III		
Source	Wald Chi-Square	df	Sig
(Intercept)	39.35	1	0.000
year	39.83	2	0.000

Model: (Intercept), year

Parameter Estimates

			95% Wald CI			Hypothesis Test			95% Wald CI for Exp(B)	
Parameter	B	Std. Error	Lower	Upper	Wald Chi-Square	df	Sig.	Exp(B)	Lower	Upper
(Intercept)	-0.15	0.09	-0.33	0.03	2.63	1	0.105	0.86	0.72	1.03
[year=3]	-0.90	0.17	-1.23	-0.56	28.10	1	0.000	0.41	0.29	0.57
[year=2]	0.14	0.13	-0.11	0.39	1.20	1	0.274	1.15	0.89	1.48
[year=1]	0[a]							1		
(Scale)	1[b]									

Model: (Intercept), year

a. Set to zero because this parameter is redundant

b. Fixed at the displayed value

Black - ODRs

Categorical Variable Information

Factor/Academic Year	N	Percent
2013-14	29	29.6
2012-13	29	29.6
2011-12	40	40.08
Total	98	100.0

Continuous Variable Information

Dependent Variable	N	Minimum	Maximum	Mean	Std. Deviation
ODRs	98	0	38	9.27	9.90

Omnibus Test

Likelihood

Ratio Chi-Square	df	Sig.
87.47	2	0.000

Model: (Intercept), year

a. Compares the fitted model against the intercept-only model

Test of Model Effects

	Type III		
Source	Wald Chi-Square	df	Sig
(Intercept)	3360.60	1	0.000
year	80.25	2	0.000

Model: (Intercept), year

Parameter Estimates

			95% Wald CI			Hypothesis Test			95% Wald CI for Exp(B)	
Parameter	B	Std. Error	Lower	Upper	Wald Chi-Square	df	Sig.	Exp(B)	Lower	Upper
(Intercept)	2.51	0.05	2.42	2.60	3087.35	1	0.000	12.28	11.24	13.41
[year=3]	-0.80	0.09	-0.98	-0.62	77.17	1	0.000	0.45	0.38	0.54
[year=2]	-0.33	0.08	-0.48	-0.18	17.90	1	0.000	0.72	0.62	0.84
[year=1]	0[a]							1		
(Scale)	1[b]									

Model: (Intercept), year

a. Set to zero because this parameter is redundant

b. Fixed at the displayed value

Black – Suspensions

Continuous Variable Information

Dependent Variable	N	Minimum	Maximum	Mean	Std. Deviation
Suspensions	98	0	8	1.81	2.15

Omnibus Test

Likelihood Ratio Chi-Square	df	Sig.
22.71	2	0.000

Model: (Intercept), year

b. Compares the fitted model against the intercept-only model

Test of Model Effects

	Type III		
Source	Wald Chi-Square	df	Sig
(Intercept)	30.30	1	0.000
year	18.95	2	0.000

Model: (Intercept), year

Parameter Estimates

Parameter	B	Std. Error	95% Wald CI Lower	95% Wald CI Upper	Wald Chi-Square	Hypothesis Test df	Hypothesis Test Sig.	Exp(B)	95% Wald CI for Exp(B) Lower	95% Wald CI for Exp(B) Upper
(Intercept)	0.85	0.10	0.65	1.06	68.62	1	0.000	2.35	1.92	2.88
[year=3]	-0.96	0.22	-1.40	-0.53	18.91	1	0.000	0.38	0.25	0.59
[year=2]	-0.18	0.17	-0.51	0.15	1.13	1	0.287	0.84	0.61	1.16
[year=1]	0[a]							1		
(Scale)	1[b]									

Model: (Intercept), year

a. Set to zero because this parameter is redundant

b. Fixed at the displayed value

Hispanic - ODRs

Categorical Variable Information

Factor/Academic Year	N	Percent
2013-14	64	34.4
2012-13	64	34.4
2011-12	58	31.2
Total	186	100.0

Continuous Variable Information

Dependent Variable	N	Minimum	Maximum	Mean	Std. Deviation
ODRs	186	0	44	2.74	5.70

Omnibus Test

Likelihood Ratio Chi-Square	df	Sig.
136.80	2	0.000

Model: (Intercept), year

c. Compares the fitted model against the intercept-only model

Test of Model Effects

Source	Type III Wald Chi-Square	df	Sig
(Intercept)	259.09	1	0.000
year	99.65	2	0.000

Model: (Intercept), year

Parameter Estimates

Parameter	B	Std. Error	95% Wald CI Lower	95% Wald CI Upper	Wald Chi-Square	Hypothesis Test df	Hypothesis Test Sig.	Exp(B)	95% Wald CI for Exp(B) Lower	95% Wald CI for Exp(B) Upper
(Intercept)	1.36	0.07	1.23	1.49	418.07	1	0.000	3.90	3.42	4.44
[year=3]	-1.41	0.14	-1.69	-1.13	95.24	1	0.000	0.25	0.18	0.33
[year=2]	0.11	0.09	-0.30	0.07	1.40	1	0.236	0.89	0.74	1.08
[year=1]	0[a]							1		
(Scale)	1[b]									

Model: (Intercept), year

a. Set to zero because this parameter is redundant

b. Fixed at the displayed value

Hispanic - Suspensions

Continuous Variable Information

Dependent Variable	N	Minimum	Maximum	Mean	Std. Deviation
Suspensions	186	0	7	0.44	1.14

Omnibus Test

Likelihood Ratio Chi-Square	df	Sig.
22.58	2	0.000

Model: (Intercept), year

d. Compares the fitted model against the intercept-only model

Test of Model Effects

Source	Type III Wald Chi-Square	df	Sig
(Intercept)	57.09	1	0.000
Year	19.71	2	0.000

Model: (Intercept), year

Parameter Estimates

Parameter	B	Std. Error	95% Wald CI Lower	95% Wald CI Upper	Wald Chi-Square	Hypothesis Test df	Hypothesis Test Sig.	Exp(B)	95% Wald CI for Exp(B) Lower	95% Wald CI for Exp(B) Upper
(Intercept)	-0.93	0.21	-1.33	-0.52	19.68	1	0.000	0.40	0.26	0.60
[year=3]	-0.75	0.36	-1.45	-0.05	4.42	1	0.035	0.47	0.24	0.95
[year=2]	0.62	0.25	0.12	1.12	5.86	1	0.015	1.85	1.13	3.05

[year=1]	0[a]							1		
(Scale)	1[b]									

Model: (Intercept), year

a. Set to zero because this parameter is redundant

b. Fixed at the displayed value

Free-Reduced Lunch – ODRs

Categorical Variable Information

Factor/Academic Year	N	Percent
2013-14	183	33.9
2012-13	169	31.3
2011-12	188	34.8
Total	540	100.0

Continuous Variable Information

Dependent Variable	N	Minimum	Maximum	Mean	Std. Deviation
ODRs	540	0	53	5.52	9.10

Omnibus Test

Likelihood Ratio Chi-Square	df	Sig.
595.11	2	0.000

Model: (Intercept), year

e. Compares the fitted model against the intercept-only model

Test of Model Effects

	Type III		
Source	Wald Chi-Square	df	Sig
(Intercept)	5879.18	1	0.000
year	487.60	2	0.000

Model: (Intercept), year

Parameter Estimates

			95% Wald CI			Hypothesis Test			95% Wald CI for Exp(B)	
Parameter	B	Std. Error	Lower	Upper	Wald Chi-Square	df	Sig.	Exp(B)	Lower	Upper
(Intercept)	2.08	0.03	2.03	2.13	6511.90	1	0.000	5.01	7.61	8.42
[year=3]	-1.19	0.05	-1.30	-1.09	487.60	1	0.000	0.30	0.27	0.34
[year=2]	-0.27	0.04	-0.35	-0.19	45.17	1	0.000	0.76	0.70	0.83
[year=1]	0[a]							1		
(Scale)	1[b]									

Model: (Intercept), year

a. Set to zero because this parameter is redundant

b. Fixed at the displayed value

Free-Reduced Lunch – Suspensions

Continuous Variable Information

Dependent Variable	N	Minimum	Maximum	Mean	Std. Deviation
Suspensions	540	0	8	0.99	1.81

Omnibus Test

Likelihood Ratio Chi-Square	df	Sig.
91.07	2	0.000

Model: (Intercept), year

a. Compares the fitted model against the intercept-only model

Test of Model Effects

	Type III		
Source	Wald Chi-Square	df	Sig
(Intercept)	4.98	1	0.026
year	74.52	2	0.000

Model: (Intercept), year

Parameter Estimates

			95% Wald CI			Hypothesis Test			95% Wald CI for Exp(B)	
Parameter	B	Std. Error	Lower	Upper	Wald Chi-Square	df	Sig.	Exp(B)	Lower	Upper
(Intercept)	0.15	0.07	0.02	0.29	5.10	1	0.024	1.17	1.02	1.33
[year=3]	-0.93	0.13	-1.18	-0.68	52.66	1	0.000	0.39	0.31	0.51
[year=2]	0.15	0.09	-0.34	0.34	2.56	1	0.110	1.16	0.97	1.40
[year=1]	0[a]							1		
(Scale)	1[b]									

Model: (Intercept), year

a. Set to zero because this parameter is redundant

b. Fixed at the displayed value

Paid Lunch – ODRs

Categorical Variable Information

Factor/Academic Year	N	Percent
2013-14	64	32.0
2012-13	68	34.0
2011-12	68	34.0
Total	200	100.0

Continuous Variable Information

Dependent Variable	N	Minimum	Maximum	Mean	Std. Deviation
ODRs	200	0	50	2.72	6.11

Omnibus Test

Likelihood Ratio Chi-Square	df	Sig.
78.34	2	0.000

Model: (Intercept), year

a. Compares the fitted model against the intercept-only model

Test of Model Effects

	Type III		
Source	Wald Chi-Square	df	Sig
(Intercept)	396.60	1	0.000
year	77.12	2	0.000

Model: (Intercept), year

Parameter Estimates

Parameter	B	Std. Error	95% Wald CI Lower	95% Wald CI Upper	Wald Chi-Square	Hypothesis Test df	Hypothesis Test Sig.	Exp(B)	95% Wald CI for Exp(B) Lower	95% Wald CI for Exp(B) Upper
(Intercept)	1.42	0.06	1.31	1.54	570.55	1	0.000	4.15	3.69	4.66
[year=3]	-0.90	0.11	-1.12	-0.68	63.14	1	0.000	0.41	0.33	0.51
[year=2]	-0.61	0.10	-0.80	-0.41	36.45	1	0.000	0.55	0.45	0.67
[year=1]	0[a]							1		
(Scale)	1[b]									

Model: (Intercept), year

a. Set to zero because this parameter is redundant

b. Fixed at the displayed value

Paid Lunch – Suspensions

Continuous Variable Information

Dependent Variable	N	Minimum	Maximum	Mean	Std. Deviation
Suspensions	200	0	7	0.34	1.03

Omnibus Test

Likelihood Ratio Chi-Square	df	Sig.
11.84	2	0.003

Model: (Intercept), year

a. Compares the fitted model against the intercept-only model

Test of Model Effects

	Type III		
Source	Wald Chi-Square	df	Sig
(Intercept)	75.25	1	0.000
year	9.86	2	0.007

Model: (Intercept), year

Parameter Estimates

Parameter	B	Std. Error	95% Wald CI Lower	95% Wald CI Upper	Wald Chi-Square	Hypothesis Test df	Hypothesis Test Sig.	Exp(B)	95% Wald CI for Exp(B) Lower	95% Wald CI for Exp(B) Upper
(Intercept)	-0.72	0.17	-1.06	-0.38	17.25	1	0.000	0.48	0.35	0.68
[year=3]	-1.13	0.36	-1.84	-0.43	9.86	1	0.002	0.32	0.16	0.65
[year=2]	-0.28	0.27	0.80	0.24	1.10	1	0.295	0.76	0.45	1.27
[year=1]	0[a]							1		
(Scale)	1[b]									

Model: (Intercept), year

a. Set to zero because this parameter is redundant

b. Fixed at the displayed value

Special Education – NO – ODRs

Categorical Variable Information

Factor/Academic Year	N	Percent
2013-14	210	34.7
2012-13	190	31.4
2011-12	206	34.0
Total	606	100.0

Continuous Variable Information

Dependent Variable	N	Minimum	Maximum	Mean	Std. Deviation
ODRs	606	0	53	4.24	7.97

Omnibus Test

Likelihood Ratio Chi-Square	df	Sig.
388.99	2	0.000

Model: (Intercept), year

a. Compares the fitted model against the intercept-only model

Test of Model Effects

Source	Type III Wald Chi-Square	df	Sig
(Intercept)	4088.96	1	0.000
year	340.84	2	0.000

Model: (Intercept), year

Parameter Estimates

Parameter		Std.	95% Wald CI		Wald Chi-Square	Hypothesis Test			95% Wald CI for Exp(B)	
	B	Error	Lower	Upper		df	Sig.	Exp(B)	Lower	Upper
(Intercept)	1.80	0.28	1.74	1.85	4022.55	1	0.000	6.04	5.71	6.38
[year=3]	-1.00	0.05	-1.11	-0.90	340.70	1	0.000	0.37	0.33	0.41
[year=2]	-0.29	0.04	-0.38	-0.20	42.26	1	0.000	0.75	0.69	0.82
[year=1]	0[a]							1		
(Scale)	1[b]									

Model: (Intercept), year

a. Set to zero because this parameter is redundant

b. Fixed at the displayed value

Special Education – YES – ODRs

Categorical Variable Information

Factor/Academic Year	N	Percent
2013-14	37	27.6
2012-13	47	35.1
2011-12	50	37.3
Total	134	100.0

Continuous Variable Information

Dependent Variable	N	Minimum	Maximum	Mean	Std. Deviation
ODRs	134	0	48	7.13	10.20

Omnibus Test

Likelihood Ratio Chi-Square	df	Sig.
242.66	2	0.000

Model: (Intercept), year

a. Compares the fitted model against the intercept-only model

Test of Model Effects

Source	Type III Wald Chi-Square	df	Sig
(Intercept)	1651.26	1	0.000
year	186.97	2	0.000

Model: (Intercept), year

Parameter Estimates

Parameter	B	Std. Error	95% Wald CI Lower	95% Wald CI Upper	Wald Chi-Square	Hypothesis Test df	Hypothesis Test Sig.	Exp(B)	95% Wald CI for Exp(B) Lower	95% Wald CI for Exp(B) Upper
(Intercept)	2.39	0.04	2.30	2.47	3088.93	1	0.000	10.86	9.98	11.81
[year=3]	-1.52	0.11	-1.74	-1.29	174.65	1	0.000	0.22	0.18	0.27
[year=2]	-0.45	0.07	-0.59	-0.31	41.43	1	0.000	0.64	0.56	0.73
[year=1]	0[a]							1		
(Scale)	1[b]									

Model: (Intercept), year

a. Set to zero because this parameter is redundant

b. Fixed at the displayed value

Special Education – NO – Suspensions

Continuous Variable Information

Dependent Variable	N	Minimum	Maximum	Mean	Std. Deviation
Suspensions	606	0	8	0.65	1.49

Omnibus Test

Likelihood Ratio Chi-Square	df	Sig.
37.39	2	0.000

Model: (Intercept), year

a. Compares the fitted model against the intercept-only model

Test of Model Effects

Source	Type III Wald Chi-Square	df	Sig
(Intercept)	81.25	1	0.000
year	32.91	2	0.000

Model: (Intercept), year

Parameter Estimates

Parameter	B	Std. Error	95% Wald CI Lower	95% Wald CI Upper	Wald Chi-Square	Hypothesis Test df	Hypothesis Test Sig.	Exp(B)	95% Wald CI for Exp(B) Lower	95% Wald CI for Exp(B) Upper
(Intercept)	-0.22	0.08	-0.38	-0.07	8.13	1	0.004	0.80	0.69	0.93
[year=3]	-0.73	0.14	-1.00	-0.47	29.01	1	0.000	0.48	0.37	0.63

[year=2]	-0.04	0.11	-0.26	0.19	0.09	1	0.760	0.97	0.77	1.21
[year=1]	0[a]							1		
(Scale)	1[b]									

Model: (Intercept), year

a. Set to zero because this parameter is redundant

b. Fixed at the displayed value

Special Education – YES – Suspensions

Continuous Variable Information

Dependent Variable	N	Minimum	Maximum	Mean	Std. Deviation
Suspensions	134	0	8	1.54	2.11

Omnibus Test

Likelihood Ratio Chi-Square	df	Sig.
65.20	2	0.000

Model: (Intercept), year

a. Compares the fitted model against the intercept-only model

Test of Model Effects

	Type III		
Source	Wald Chi-Square	df	Sig
(Intercept)	1.12	1	0.290
year	40.70	2	0.000

Model: (Intercept), year

Parameter Estimates

			95% Wald CI			Hypothesis Test			95% Wald CI for Exp(B)	
Parameter	B	Std. Error	Lower	Upper	Wald Chi-Square	df	Sig.	Exp(B)	Lower	Upper
(Intercept)	0.55	0.11	0.34	0.76	26.69	1	0.000	1.74	1.41	2.15
[year=3]	-1.60	0.30	-2.18	-1.02	29.95	1	0.000	0.20	0.11	0.36
[year=2]	0.27	0.14	-0.01	0.55	3.47	1	0.063	1.31	0.99	1.74
[year=1]	0[a]							1		
(Scale)	1[b]									

Model: (Intercept), year

a. Set to zero because this parameter is redundant

b. Fixed at the displayed value

Appendix F

Question #2a

ELA and Mathematics Score Descriptive Data

				Std.	Std.	95% CI for Mean			
		N	Mean	Dev.	Error	Lower Bound	Upper Bound	Min.	Max.
ELA	2011-12	242	504.18	71.338	4.586	495.14	513.21	295	701
Scale	2012-13	213	511.24	72.409	4.961	501.46	521.02	248	703
Score	2013-14	240	501.37	62.184	4.014	493.46	509.27	306	633
	Total	695	505.37	68.682	2.605	500.26	510.49	248	703
Math	2011-12	245	536.33	73.048	4.667	527.13	545.52	366	738
Scale	2012-13	229	530.80	79.790	5.273	520.41	541.19	290	790
Score	2013-14	244	538.18	67.000	4.289	529.74	546.63	290	709
	Total	718	535.19	73.290	2.735	529.83	540.56	290	790

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
ELA Scale Score	2.147	2	692	.118
Math Scale Score	2.006	2	715	.135

ELA and Math Scale Score ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
ELA Scale Score	Between Groups	11528.343	2	5764.171	1.223	.295
	Within Groups	3262177.882	692	4714.130		
	Total	3273706.224	694			
Math Scale Score	Between Groups	6919.364	2	3459.682	.643	.526
	Within Groups	3844381.338	715	5376.757		
	Total	3851300.702	717			

Robust Tests of Equality of Means

		Statistic[a]	df1	df2	Sig.
ELA Scale Score	Welch	1.214	2	452.697	.298
	Brown-Forsythe	1.215	2	667.185	.297
Math Scale	Welch	.607	2	470.830	.545
Score	Brown-Forsythe	.640	2	691.067	.528

a. Asymptotically F distributed.

Dependent Variable: ELA Scores

Levene's Test of Equality of Error Variances

F	df1	df2	Sig.
2.15	2	692	0.118

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	11528.34[a]	2	5764.17	1.22	0.295
Intercept	177057119.00	1	177057119.00	37558.81	0.000
Year	11528.34	2	5764.17	1.22	0.295
Error	3262177.88	692	4714.13		
Total	180776757.00	695			
Corrected Total	3273706.22	694			

a. R squared = 0.004 (Adjusted R Squared = 0.001)

Pairwise Comparisons

Academic year (I)	Academic year (J)	(I-J) Mean Difference	Std. Error	Sig.[a]	95% Confidence Interval	
					Lower Bound	Upper Bound
2011-12	2012-13	-7.06	6.45	0.274	-19.73	5.60
2011-12	2013-14	2.81	6.26	0.653	-9.47	15.09
2012-13	2013-14	9.87	6.46	0.127	-2.81	22.56

Based on estimated marginal means

a. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Univariate Tests

	Sum of Squares	df	Mean Square	F	Sig.
Contrast	11528.34	2	5764.17	1.22	0.295
Error	3262177.88	692	4714.13		

The F tests the effect of Academic year. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

Dependent Variable: Mathematics Scores

Levene's Test of Equality of Error Variances

F	df1	df2	Sig.
2.01	2	715	0.135

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	6919.36[a]	2	3459.68	0.64	0.526
Intercept	205392556.00	1	205392556.00	38200.08	0.000
Year	6919.36	2	3459.68	0.64	0.526
Error	3844381.34	715	5376.76		
Total	3851300.70	718			
Corrected Total	3851300.70	717			

a. R squared = 0.002 (Adjusted R Squared = 0.001)

Pairwise Comparisons

Academic year (I)	Academic year (J)	(I-J) Mean Difference	Std. Error	Sig.[a]	95% Confidence Interval	
					Lower Bound	Upper Bound
2011-12	2012-13	5.53	6.74	0.412	-7.71	18.76
2011-12	2013-14	-1.86	6.63	0.779	-14.88	11.16
2012-13	2013-14	-7.39	6.75	0.274	-5.86	20.63

Based on estimated marginal means

a. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Univariate Tests

	Sum of Squares	df	Mean Square	F	Sig.
Contrast	6919.36	2	3459.68	0.64	0.526
Error	3844381.34	715	5376.76		

The F tests the effect of Academic year. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

Appendix G

Question 2b

ELA Scores Ethnicity

	White			Black			Hispanic	
Year	N	Mean	SD	N	Mean	SD	N	SD	M
2011-12	132	512.04	72.844	35	456.91	67.166	57	507.54	60.054
2012-13	111	529.64	70.900	24	501.33	69.225	59	484.10	72.488
2013-14	141	504.16	63.907	29	491.66	54.789	60	497.87	63.321

Math Scores Ethnicity

	White			Black			Hispanic	
Year	N	Mean	SD	N	Mean	SD	N	SD	M
2011-12	133	547.20	72.715	36	481.86	60.464	57	543.67	68.988
2012-13	120	554.82	76.465	28	492.18	90.393	61	505.62	69.862
2013-14	141	545.28	68.016	29	511.83	62.505	64	534.14	67.668

ELA Scores SES

	Free/Reduced			Paid		
Year	N	Mean	SD	N	Mean	SD
2011-12	175	495.39	69.574	67	527.12	71.292
2012-13	152	503.65	68.281	61	530.15	79.263
2013-14	179	490.34	60.088	61	533.72	57.138

Math Scores SES

	Free/Reduced			Paid		
Year	N	Mean	SD	N	Mean	SD
2011-12	178	523.52	68.552	67	570.36	74.203
2012-13	164	519.55	76.742	65	559.18	80.859
2013-14	181	527.01	62.695	63	570.30	69.063

ELA Scores Special Education

	Special Education			General Education		
Year	N	Mean	SD	N	Mean	SD
2011-12	43	444.09	74.218	199	517.16	63.816
2012-13	27	463.41	79.814	186	518.18	68.779
2013-14	34	442.76	70.043	206	511.04	55.271

Math Scores Special Education

	Special Education			General Education		
Year	N	Mean	SD	N	Mean	SD
2011-12	46	481.04	69.111	199	549.11	67.942
2012-13	43	478.79	89.256	186	542.82	72.550
2013-14	35	502.80	65.822	209	544.11	65.500

Appendix H

Question 3a

White

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
ELA Scale Score	0.71	2	381	0.492
Math Scale Score	1.02	2	391	0.363

ELA and Math Scale Score ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
ELA Scale Score	Between Groups	41281.26	2	20640.63	4.32	0.014
	Within Groups	1819847.64	381	4776.50		
	Total	1861128.91	383			
Math Scale Score	Between Groups	6433.25	2	3216.62	0.62	0.541
	Within Groups	2041375.70	391	5220.91		
	Total	2047808.94	393			

Robust Tests of Equality of Means

		Statistic[a]	df1	df2	Sig.
ELA Scale Score	Welch	4.40	2	244.93	0.013
Math Scale Score	Welch	0.59	2	255.14	0.557

a. Asymptotically F distributed.

Black

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
ELA Scale Score	0.91	2	85	0.408
Math Scale Score	3.06	2	90	0.052

ELA and Math Scale Score ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
ELA Scale Score	Between Groups	33495.33	2	16747.66	4.10	0.020
	Within Groups	347652.63	85	4090.03		
	Total	381147.96	87			
Math Scale Score	Between Groups	14605.41	2	7302.70	1.44	0.243
	Within Groups	457966.55	90	5088.52		
	Total	472571.96	92			

Robust Tests of Equality of Means

		Statistic[a]	df1	df2	Sig.
ELA Scale Score	Welch	3.78	2	52.93	0.020
Math Scale Score	Welch	1.89	2	55.18	0.161

a. Asymptotically F distributed.

Hispanic

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
ELA Scale Score	0.02	2	173	0.978
Math Scale Score	0.04	2	179	0.966

ELA and Math Scale Score ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
ELA Scale Score	Between Groups	16131.26	2	8065.63	1.88	0.156
	Within Groups	743288.46	173	4296.47		
	Total	759419.73	175			
Math Scale Score	Between Groups	46913.98	2	23456.99	4.95	0.008
	Within Groups	847842.73	179	4736.55		
	Total	894756.71	181			

Robust Tests of Equality of Means

		Statistic[a]	df1	df2	Sig.
ELA Scale Score	Welch	1.79	2	114.83	0.171
Math Scale Score	Welch	4.84	2	118.58	0.008

a. Asymptotically F distributed.

SES = Paid

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
ELA Scale Score	2.35	2	503	0.097
Math Scale Score	1.95	2	520	0.144

ELA and Math Scale Score ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
ELA Scale Score	Between Groups	14691.65	2	7345.82	1.69	0.186
	Within Groups	2188934.53	503	4351.76		
	Total	2203626.17	505			
Math Scale Score	Between Groups	4784.49	2	2392.24	0.50	0.608
	Within Groups	2499264.05	520	4806.28		
	Total	2504048.54	522			

Robust Tests of Equality of Means

		Statistic[a]	df1	df2	Sig.
ELA Scale Score	Welch	1.74	2	327.42	0.177
Math Scale Score	Welch	0.49	2	339.74	0.615

a. Asymptotically F distributed.

SES = Free-Reduced

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
ELA Scale Score	3.16	2	186	0.045
Math Scale Score	0.63	2	192	0.535

ELA and Math Scale Score ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
ELA Scale Score	Between Groups	1392.29	2	696.12	0.14	0.867
	Within Groups	908300.979	186	4883.34		
	Total	909693.22	188			
Math Scale Score	Between Groups	5383.70	2	2691.85	0.48	0.620
	Within Groups	1077578.46	192	5612.39		
	Total	1082962.15	194			

Robust Tests of Equality of Means

		Statistic[a]	df1	df2	Sig.
ELA Scale Score	Welch	0.17	2	121.71	0.844
Math Scale Score	Welch	0.44	2	127.61	0.644

a. Asymptotically F distributed.

Special Education = No

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
ELA Scale Score	4.13	2	588	0.016
Math Scale Score	0.86	2	591	0.424

ELA and Math Scale Score ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
ELA Scale Score	Between Groups	5973.87	2	2986.93	0.76	0.468
	Within Groups	2307748.33	588	3924.74		
	Total	2313722.20	590			
Math Scale Score	Between Groups	4315.62	2	2157.81	0.46	0.632
	Within Groups	2041375.70	391	5220.91		
	Total	2047808.94	393			

Robust Tests of Equality of Means

		Statistic[a]	df1	df2	Sig.
ELA Scale Score	Welch	0.84	2	383.03	0.434
Math Scale Score	Welch	0.45	2	389.02	0.636

a. Asymptotically F distributed.

Special Education = Yes

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
ELA Scale Score	0.00	2	101	0.998
Math Scale Score	1.00	2	121	0.370

ELA and Math Scale Score ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
ELA Scale Score	Between Groups	7950.62	2	3975.31	0.72	0.490
	Within Groups	558874.26	101	5533.41		
	Total	566824.89	103			
Math Scale Score	Between Groups	13223.21	2	6611.61	1.15	0.321
	Within Groups	696838.63	121	5759.00		
	Total	710061.84	123			

Robust Tests of Equality of Means

		Statistic[a]	df1	df2	Sig.
ELA Scale Score	Welch	0.65	2	61.08	0.525
Math Scale Score	Welch	1.34	2	78.47	0.269

a. Asymptotically F distributed.

Appendix I

Question 3b: Compare ELA and Mathematics Scores with ODRs and Suspensions

Descriptive Data comparing ELA and Mathematics Scores with Categorical ODRs

	N	Mean	Std. Deviation	Std. Error	95% CI for Mean Lower Bound	95% CI for Mean Upper Bound	Min	Max
ELA 0	291	517.03	70.36	4.12	508.91	525.15	248	703
1-5	237	507.75	62.36	4.05	499.77	515.73	325	701
6-10	73	495.34	57.25	6.70	481.99	508.70	378	616
11-15	37	479.49	86.47	14.22	450.65	508.32	281	644
16-20	17	453.12	70.13	17.01	417.06	489.17	320	601
21+	40	470.90	65.93	10.43	449.81	491.99	334	610
Total	695	505.37	68.68	2.61	500.26	510.49	248	703
Math 0	296	549.12	71.02	4.13	541.00	557.25	290	738
1-5	241	539.73	68.75	4.43	531.01	548.45	304	790
6-10	78	517.42	69.25	7.84	501.81	533.04	290	674
11-15	40	524.98	63.21	9.99	504.76	545.19	367	676
16-20	19	481.00	95.90	22.00	434.78	527.22	290	735
21+	44	480.86	77.96	11.75	457.16	504.56	290	606
Total	718	535.19	73.29	2.74	529.83	540.56	290	790

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
ELA Scale Score	1.48	5	689	0.196
Math Scale Score	1.10	5	712	0.360

ANOVA comparing ELA and Mathematic Scores with Categorical ODRs

		Sum of Squares	df	Mean Square	F	Sig.
ELA Scale Score	Between Groups	166984.14	5	33396.83	7.41	0.000
	Within Groups	3106722.08	689	4509.03		
	Total	3273706.22	694			
Math Scale Score	Between Groups	276868.42	5	55373.68	11.03	0.000
	Within Groups	3574432.29	712	5020.27		
	Total	3851300.70	717			

Robust Tests of Equality of Means

		Statistic[a]	df1	df2	Sig.
ELA Scale Score	Welch	6.67	5	95.67	0.000
Math Scale Score	Welch	8.95	5	105.67	0.000

Tukey Post Hoc Test to compare ELA/Math Scores with ODRs – Multiple Comparisons

(I)ODRs categorized	(J) ODRs categorized	(I-J)Mean Difference	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
0 ELA	1-5	9.28	5.88	0.612	-7.51	26.07
	6-10	21.69	8.79	0.135	-3.43	46.81
	11-15	37.54	11.72	0.018	4.05	71.04
	16-20	63.91	16.76	0.002	16.03	111.80
	21+	46.13	11.32	0.001	13.77	78.49
1-5	6-10	12.41	8.99	0.739	-13.28	38.10
	11-15	28.27	11.87	0.164	6.45	102.82
	16-20	54.63	16.86	0.016	6.45	102.82
	21+	36.85	11.48	0.017	4.05	69.65
6-10	11-15	15.87	13.55	0.851	-22.87	54.58
	16-20	42.23	18.08	0.181	-9.45	93.90
	21+	24.44	13.21	0.434	-13.31	62.19
11-15	16-20	26.37	19.68	0.762	-29.86	82.59
	21+	8.59	15.32	0.993	-35.18	52.36
16-20	21+	-17.78	19.44	0.943	-73.34	37.78
0 Math	1-5	9.39	6.15	0.646	-8.18	26.96
	6-10	31.70	9.02	0.006	5.93	57.47
	11-15	24.15	11.94	0.330	-9.96	58.25
	16-20	68.12	16.77	0.001	20.21	116.04
	21+	68.26	11.45	0.000	35.55	100.97
1-5	6-10	22.31	9.23	0.152	-4.07	48.68
	11-15	14.76	12.10	0.827	-19.81	49.32
	16-20	58.73	16.88	0.007	10.49	106.88
	21+	58.87	11.62	0.000	25.67	92.06
6-10	11-15	-7.55	13.78	0.994	-46.93	31.82
	16-20	36.42	18.13	0.338	-15.37	88.22
	21+	36.56	13.36	0.069	-1.61	74.73
11-15	16-20	43.98	19.74	0.226	-12.44	100.39
	21+	44.11	15.47	0.051	-0.12	88.34
16-20	21+	0.14	19.45	1.000	-55.44	55.72

Descriptive Data comparing ELA and Mathematics Scores with Categorical Suspensions

			Std.	Std.	95% CI for Mean			
	N	Mean	Deviation	Error	Lower Bound	Upper Bound	Min	Max
ELA 0	511	516.30	66.42	2.94	510.52	522.07	248	703
1	62	486.02	58.46	7.42	471.17	500.86	325	633
2	42	488.62	74.62	11.51	465.37	511.87	302	644
3-4	36	454.06	73.16	12.19	429.30	478.81	281	583
5-6	36	469.44	56.24	9.38	450.42	488.47	320	582
7-8	8	438.13	46.98	16.62	398.83	477.42	334	483
Total	695	505.37	68.68	2.61	500.26	510.49	248	703
Math 0	520	548.49	71.02	3.12	542.37	554.61	290	790
1	64	511.06	63.06	7.88	495.31	526.81	290	655
2	45	517.64	62.45	9.31	498.88	536.41	351	653
3-4	39	475.79	74.93	12.00	451.51	500.08	290	652
5-6	41	489.66	69.52	10.86	467.71	511.60	290	606
7-8	9	491.22	51.43	17.14	451.69	530.75	406	566
Total	718	535.19	73.29	2.74	529.83	540.56	290	790

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
ELA Scale Score	1.46	5	689	0.201
Math Scale Score	0.74	5	712	0.591

ANOVA comparing ELA and Mathematic Scores with Categorical ODRs

		Sum of Squares	df	Mean Square	F	Sig.
ELA Scale Score	Between Groups	273437.30	5	54687	12.56	0.000
	Within Groups	3000268.92	689	4354.53		
	Total	3273706.22	694			
Math Scale Score	Between Groups	383077.56	5	76615.51	15.73	0.000
	Within Groups	3468223.15	712	4871.10		
	Total	3851300.70	717			

Robust Tests of Equality of Means

		Statistic[a]	df1	df2	Sig.
ELA Scale Score	Welch	13.56	5	52.34	0.000
Math Scale Score	Welch	15.24	5	59.00	0.000

Tukey Post Hoc Test to compare ELA/Math Scores with ODRs – Multiple Comparisons

(I)ODRs categorized	(J) ODRs categorized	(I-J)Mean Difference	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
0 ELA	1	30.28	8.87	0.009	4.92	55.64
	2	27.68	10.59	0.095	-2.59	57.95
	3-4	62.24	11.38	0.000	29.72	94.76
	5-6	46.85	11.38	0.001	14.33	79.37
	7-8	78.17	23.51	0.012	10.98	145.36
1	2	-2.60	13.19	1.000	-40.29	35.08
	3-4	31.96	13.83	0.191	-7.55	71.48
	5-6	16.57	13.83	0.838	-22.94	56.09
	7-8	47.89	24.79	0.383	-22.95	118.74
2	3-4	34.56	14.99	0.193	-8.27	77.40
	5-6	19.18	14.99	0.796	-23.66	62.01
	7-8	50.49	25.46	0.353	-22.25	123.24
3-4	5-6	-15.39	15.55	0.921	-59.84	29.06
	7-8	15.93	25.79	0.990	-57.78	89.64
5-6	7-8	31.32	25.79	0.830	-42.39	105.03
0 Math	1	37.43	9.25	0.001	11.01	63.85
	2	30.85	10.85	0.050	-0.14	61.84
	3-4	72.70	11.59	0.000	39.58	105.81
	5-6	58.83	11.32	0.000	26.48	91.18
	7-8	57.27	23.47	0.144	-9.78	124.32
1	2	-6.58	13.58	0.997	-45.38	32.22
	3-4	35.27	14.18	0.129	-5.25	75.78
	5-6	21.40	13.96	0.643	-18.49	61.30
	7-8	19.84	24.85	0.968	-51.16	90.84
2	3-4	41.85	15.27	0.069	-1.78	85.48
	5-6	27.99	15.07	0.430	-15.07	71.04
	7-8	26.42	25.49	0.905	-46.40	99.25
3-4	5-6	-13.86	15.61	0.949	-58.47	30.75
	7-8	-15.43	25.81	0.991	-89.18	58.32
5-6	7-8	-1.56	25.69	1.000	-74.98	71.8

Appendix J

Question 4: Generalize Linear Model

Academic Year = 2011-12

Categorical Variable Information

Factor		N	Percent
SES	Paid	188	73.4
	Free-Reduced	68	26.6
	Total	256	100.0
Special Education	Yes	50	19.5
	No	206	80.5
	Total	237	100.0
Ethnicity	Other	21	8.2
	Hispanic	58	22.7
	Black	40	15.6
	White	137	53.5
	Total	256	100.0

Continuous Variable Information

Dependent Variable	N	Minimum	Maximum	Mean	Std. Deviation
Suspensions	256	0	7	0.98	1.70

Omnibus Test

Likelihood Ratio Chi-Square	df	Sig.
117.22	5	0.000

Dependent Variable: Suspensions
Model: (Intercept), SES, SpEd, Ethnicity
a. Compares the fitted model against the intercept-only model

Test of Model Effects

	Type III		
Source	Wald Chi-Square	df	Sig
(Intercept)	3.03	1	0.082
SES	12.01	1	0.001
SpEd	12.87	1	0.000
Ethnicity	65.34	3	0.000

Dependent Variable: Suspensions
Model: (Intercept), SES, SpEd, Ethnicity

Parameter Estimates

Parameter	B	Std. Error	95% Wald CI Lower	95% Wald CI Upper	Wald Chi-Square	Hypothesis Test df	Hypothesis Test Sig.	Exp(B)	95% Wald CI for Exp(B) Lower	95% Wald CI for Exp(B) Upper
(Intercept)	-0.77	0.18	-1.11	-0.42	18.78	1	0.000	0.47	0.33	0.66
[SES=1]	0.69	0.20	0.30	1.08	12.01	1	0.001	2.00	1.35	2.95
[SES=0]	0[b]									
[SpEd=1]	0.49	0.14	0.22	0.76	12.87	1	0.000	1.64	1.25	2.15
[SpEd=0]	0[b]									
[Ethnicity=4]	-0.10	0.26	-0.62	0.41	0.15	1	0.693	0.90	0.54	1.51
[Ethnicity=3]	-0.89	0.23	-1.34	0.43	14.44	1	0.000	0.41	0.26	0.65
[Ethnicity=2]	0.80	0.14	0.52	1.08	30.88	1	0.000	2.22	1.68	
[Ethnicity=1]	0[b]									
(Scale)	1[c]									

Dependent Variable: Suspensions
Model: (Intercept), SES, SpEd, Ethnicity
b. Set to zero because this parameter is redundant.
c. Fixed at the displayed value

Academic Year = 2012-13
Categorical Variable Information

Factor		N	Percent
SES	Paid	169	71.3
	Free-Reduced	68	28.7
	Total	237	100.0
Special Education	Yes	47	19.8
	No	190	80.2
	Total	237	100.0
Ethnicity	Other	21	8.9
	Hispanic	64	27.0
	Black	29	12.2
	White	123	51.9
	Total	237	100.0

Continuous Variable Information

Dependent Variable	N	Minimum	Maximum	Mean	Std. Deviation
Suspensions	237	0	8	1.07	2.01

Omnibus Test

Likelihood Ratio Chi-Square	df	Sig.
123.65	5	0.000

Dependent Variable: Suspensions
Model: (Intercept), SES, SpEd, Ethnicity
d. Compares the fitted model against the intercept-only model

Test of Model Effects

Source	Type III Wald Chi-Square	df	Sig
(Intercept)	0.43	1	0.509
SES	29.43	1	0.000
SpEd	48.11	1	0.000
Ethnicity	17.04	3	0.001

Dependent Variable: Suspensions
Model: (Intercept), SES, SpEd, Ethnicity

Parameter Estimates

Parameter	B	Std. Error	95% Wald CI Lower	95% Wald CI Upper	Wald Chi-Square	Hypothesis Test df	Hypothesis Test Sig.	Exp(B)	95% Wald CI for Exp(B) Lower	95% Wald CI for Exp(B) Upper
(Intercept)	-1.14	0.21	-1.54	-0.73	30.41	1	0.000	0.32	0.21	0.48
[SES=1]	1.17	0.22	0.75	1.60	29.43	1	0.000	3.23	2.11	4.93
[SES=0]	0[b]									
[SpEd=1]	0.89	0.13	0.64	1.15	48.11	1	0.000	2.45	1.90	3.15
[SpEd=0]	0[b]									
[Ethnicity=4]	0.22	0.21	-0.19	0.63	1.12	1	0.289	1.25	0.83	1.88
[Ethnicity=3]	-0.45	0.17	-0.78	-0.11	6.60	1	0.010	0.64	0.46	0.90
[Ethnicity=2]	0.34	0.16	0.02	0.66	4.41	1	0.036	1.41	1.02	1.94
[Ethnicity=1]	0[b]									
(Scale)	1[c]									

Dependent Variable: Suspensions
Model: (Intercept), SES, SpEd, Ethnicity
e. Academic year = 2012-13
f. Set to zero because this parameter is redundant.
g. Fixed at the displayed value

Academic Year = 2013-14
Categorical Variable Information

Factor		N	Percent
SES	Paid	183	74.1
	Free-Reduced	64	25.9
	Total	247	100.0
Special Education	Yes	37	15.0
	No	210	85.0
	Total	247	100.0
Ethnicity	Other	12	4.9
	Hispanic	64	25.9
	Black	29	11.7
	White	142	57.5
	Total	247	100.0

Continuous Variable Information

Dependent Variable	N	Minimum	Maximum	Mean	Std. Deviation
Suspensions	247	0	7	0.38	1.04

Omnibus Test

Likelihood Ratio Chi-Square	df	Sig.
35.90	5	0.000

Dependent Variable: Suspensions
Model: (Intercept), SES, SpEd, Ethnicity
h. Compares the fitted model against the intercept-only model

Test of Model Effects

	Type III		
Source	Wald Chi-Square	Df	Sig
(Intercept)	32.28	1	0.000
SES	10.09	1	0.001
SpEd	0.21	1	0.650
Ethnicity	20.27	3	0.000

Dependent Variable: Suspensions
Model: (Intercept), SES, SpEd, Ethnicity

Parameter Estimates

			95% Wald CI			Hypothesis Test			95% Wald CI for Exp(B)	
Parameter	B	Std. Error	Lower	Upper	Wald Chi-Square	df	Sig.	Exp(B)	Lower	Upper
(Intercept)	-1.85	0.32	-2.48	-1.22	32.69	1	0.000	0.16	0.08	0.30
[SES=1]	1.10	0.34	0.42	1.77	10.09	1	0.001	2.99	1.52	5.88
[SES=0]	0[b]									
[SpEd=1]	-0.14	0.32	-0.77	0.48	0.21	1	0.650	0.87	0.46	1.61
[SpEd=0]	0[b]									
[Ethnicity=4]	0.45	0.44	-0.41	1.31	1.05	1	0.306	1.57	0.66	3.71
[Ethnicity=3]	-0.82	0.33	-1.46	-0.18	6.33	1	0.012	0.44	0.23	0.83
[Ethnicity=2]	0.69	0.25	0.19	1.19	7.41	1	0.006	2.00	1.21	3.29
[Ethnicity=1]	0[b]									
(Scale)	1[c]									

Dependent Variable: Suspensions
Model: (Intercept), SES, SpEd, Ethnicity
i. Academic year = 2013-14
j. Set to zero because this parameter is redundant.
k. Fixed at the displayed value

Appendix K

Question 5: Differences in ELA and Mathematics fail rate

Group Statistics for all 3 Academic Years for both ELA and Mathematics Pass/Fail

	2011-12				2012-13				2013-14			
ODRs	N	Mean	Std. Dev.	Std. Error	N	Mean	Std. Dev.	Std. Error	N	Mean	Std. Dev.	Std. Error
Fail – ELA	85	9.73	11.24	1.22	71	6.73	11.26	1.34	87	3.23	6.40	0.69
Pass – ELA	157	5.10	8.54	0.68	142	3.23	5.85	0.49	157	1.69	3.30	0.26
Fail – Math	57	11.49	11.77	1.56	55	7.49	9.68	1.31	47	3.68	7.47	1.90
Pass – Math	188	5.43	8.95	0.65	174	4.11	8.05	0.61	199	1.91	3.68	0.26
Suspensions												
Fail – ELA	85	1.60	1.98	0.21	71	1.48	2.45	0.29	87	0.77	1.55	0.17
Pass – ELA	157	0.59	1.32	0.11	142	0.67	1.50	0.13	157	0.16	0.49	0.40
Fail – Math	57	2.02	2.15	0.29	55	1.75	2.39	0.32	47	0.57	1.25	0.18
Pass – Math	188	0.64	1.34	0.10	174	0.85	1.81	0.14	199	0.34	0.99	0.07

Independent Sample T-Test ODRs ELA Pass/Fail for all 3 Academic Years

	Levene's Test of Equality of Variances		t-test for Equality of Means						
					Sig. (2-	Mean	Std. Error	95% CI	
ODRs – ELA	F	Sig.	t	df	tailed)	Dif.	Diff.	Lower	Upper
Equal variances assumed 2011-12	12.62	0.000	3.56	240	0.000	4.63	1.29	2.10	7.17
Equal variances not assumed			3.32	137.57	0.001	4.63	1.40	1.87	7.40
Equal variances assumed 2012-13	17.80	0.000	2.99	211	0.003	3.50	1.17	1.19	5.81
Equal variances not assumed			2.46	89.33	0.016	3.50	1.42	0.67	6.33
Equal variances assumed 2013-14	20.65	0.000	2.47	242	0.014	1.54	0.62	0.31	2.76
Equal variances not assumed			2.09	111.78	0.039	1.54	0.74	0.08	2.99

Independent Sample T-Test ODRs Mathematics Pass/Fail for all 3 Academic Years

	Levene's Test of Equality of Variances		t-test for Equality of Means						
ODRs – Mathematics	F	Sig.	t	df	Sig. (2-tailed)	Mean Dif.	Std. Error Diff.	95% CI Lower	95% CI Upper
Equal variances assumed 2011-12	16.73	0.000	4.15	243	0.000	6.07	1.46	3.19	8.95
Equal variances not assumed			3.59	76.65	0.001	6.07	1.69	2.70	9.43
Equal variances assumed 2012-13	5.64	0.018	2.58	227	0.011	3.38	1.31	0.80	5.96
Equal variances not assumed			2.35	79.02	0.022	3.38	1.44	0.51	6.24
Equal variances assumed 2013-14	17.70	0.000	2.36	244	0.019	1.77	0.75	0.29	3.25
Equal variances not assumed			1.58	51.40	0.120	1.77	1.12	-0.47	7.40

Independent Sample T-Test Suspensions ELA Pass/Fail for all 3 Academic Years

	Levene's Test of Equality of Variances		t-test for Equality of Means						
Suspensions – ELA	F	Sig.	t	df	Sig. (2-tailed)	Mean Dif.	Std. Error Diff.	95% CI Lower	95% CI Upper
Equal variances assumed 2011-12	31.05	0.000	4.76	240	0.000	1.01	0.21	0.59	1.43
Equal variances not assumed			4.24	125.54	0.000	1.01	0.24	0.54	1.49
Equal variances assumed 2012-13	29.04	0.000	2.98	211	0.003	0.81	0.27	0.27	1.35
Equal variances not assumed			2.55	96.75	0.012	0.81	0.32	0.18	1.44
Equal variances assumed 2013-14	66.11	0.000	4.55	242	0.000	0.61	0.13	0.35	0.88
Equal variances not assumed			3.57	95.48	0.001	0.61	0.17	0.27	0.95

Independent Sample T-Test Suspensions Mathematics Pass/Fail for all 3 Academic Years

	Levene's Test of Equality of Variances		t-test for Equality of Means						
Suspensions – Mathematics	F	Sig.	t	df	Sig. (2-tailed)	Mean Dif.	Std. Error Diff.	95% CI Lower	95% CI Upper
Equal variances assumed 2011-12	37.27	0.000	5.84	243	0.000	1.38	0.24	0.91	1.84
Equal variances not assumed			4.58	69.57	0.000	1.38	0.30	0.78	1.98
Equal variances assumed 2012-13	11.06	0.001	2.94	227	0.004	0.90	0.30	0.30	1.49
Equal variances not assumed			2.55	74.64	0.013	0.90	0.35	0.20	1.59
Equal variances assumed 2013-14	4.75	0.030	1.40	244	0.161	0.24	0.17	-0.10	0.57
Equal variances not assumed			1.22	60.44	0.227	0.24	0.20	-0.15	0.63

Appendix L

ISTEP+ Cut Scores

	English / Language Arts		Mathematics		Science		Social Studies	
Grade	Pass	Pass +	Pass	Pass +	Pass	Pass +	Pass	Pass +
3	417	521	413	513				
4	437	535	445	541	410	470		
5	468	548	463	556			483	550
6	478	579	487	590	467	531		
7	501	584	511	603			486	545
8	508	627	537	641				

ISTEP+ Minimum & Maximum Scores

	English / Language Arts		Mathematics		Science		Social Studies	
Grade	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
3	120	780	140	735				
4	140	800	185	750	200	750		
5	160	820	245	775			220	760
6	180	850	290	790	200	765		
7	210	870	315	810			240	760
8	230	890	340	830				